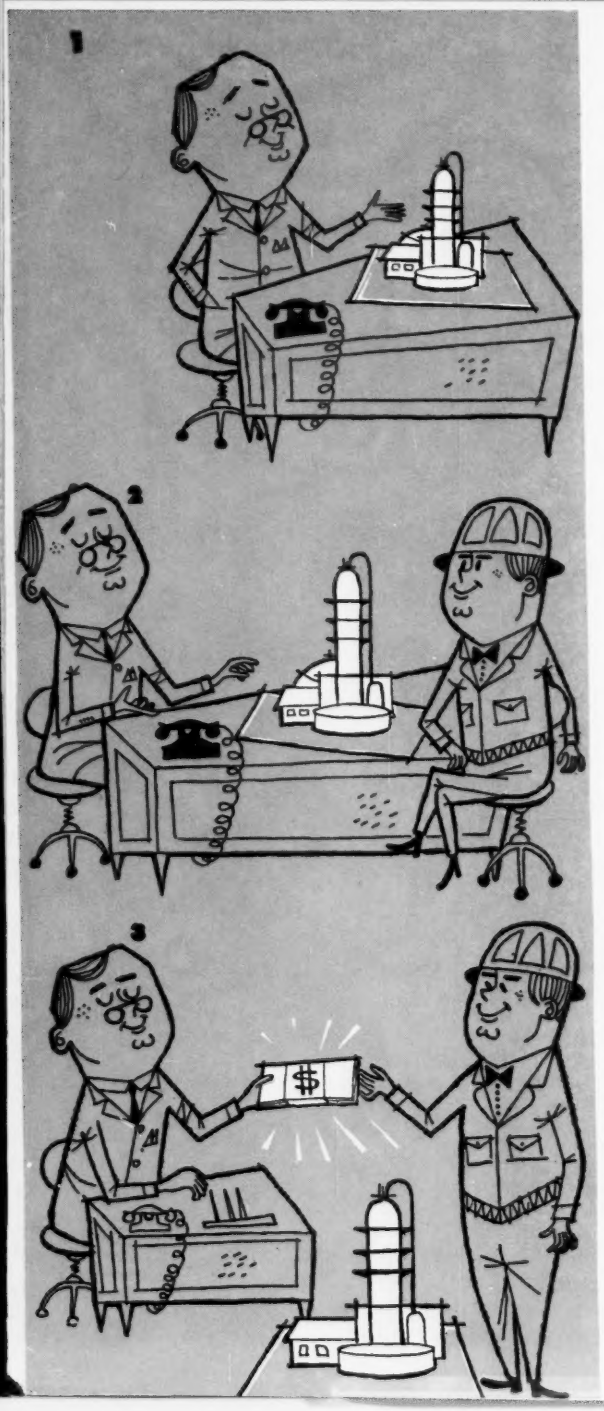
A McGRAW-HILL PUBLICATION

Chemical Week



Lithium makers gird. Threatened end of AEC stockpiling spurs diversification . . p. 32

Now Germans claim GAF. Stunning legal move opens new phase in old battle . p. 33

New water-based paints are promise of novel resins out of ADM, Amoco . . . . . p. 71

Fumaric acid mystery: Who makes how much? Where does output go? . . . . p. 97

Three ways engineering can be done. Which is most efficient for you? . . . . . p. 105

STEVENS RICE
UNIVERSITY MICROFILMS
513 N 1ST ST
ANN ARBOR MICH

Novembe

for exacting production schedules...

MATHIESON POLYETHYLENE GLYCOLS

Poly-G 200, 300, 400 and 600 are clear, odorless, viscous liquids which are soluble in water, acetone, ethanol, ethyl acetate and toluene. Poly-G 1000, 1500 and B1530 are white waxy materials having slightly less water solubility than the lower members of the series. The Poly-G's are produced to meet the most exacting requirements ... delivered directly by our own fast-moving fleet of tank cars and tank trucks ... stocked locally, in resin-lined drums, by Mathieson distributors in key industrial areas.

Technical assistance is also available, to help with your specific problems. Contact your local representative for complete information or write today.

Ethylene Oxide	Polyamines
Ethylene Glycol	Ethanolamines
Ethylene Diamine	Dichloroethylether
Diethylene Glycol	Ethylene Dichloride
Triethylene Glycol	Surfactants (Poly-Tergents)
Polyethylene Glycols (Poly-G's)	Glycol Ether Solvents (Poly-Solv's)

Poly-G, Poly-Solv and Poly-Tergent are registered trademarks

OLIN MATHIESON CHEMICAL CORPORATION

ORGANIC CHEMICALS

OLIN MATHIESON CHEMICAL CORPORATION
745 FIFTH AVENUE, NEW YORK 22, NEW YORK

5633

WHEREVER PEOPLE GO...

Insect repellents based on meta Delphene, Hercules diethyltoluamide, have proved effective against a wide spectrum of insect pests from Alaska to Angola.

A radical departure from previous concoctions, meta Delphene consists of only one chemical, providing formulators a simple, economical method of preparing their finished products. Meta Delphene is greaseless, odorless, nonirritating to even the most sensitive skins. Extremely convenient for aerosol packaging, meta Delphene also lends itself well to lotions, sticks, and specialty applications such as impregnated tissues.

...WHATEVER THEY DO...

Meta Delphene's unique property of long-lasting protection against mosquitoes, chiggers, biting flies, ticks, and other annoying insects makes outdoor activities more pleasurable. Freedom from insect attacks can now be measured by *hours* instead of *minutes*. Women like meta Delphene repellents because of pleasant feel of the preparations which dry quickly to an invisible film. And meta Delphene protection lasts and lasts over long periods of time.

...meta DELPHENE®

Hailed by fishermen, hunters, and other sportsmen, meta Delphene repellents are praised as "the first really effective materials that keep bugs from biting." Active outdoorsmen like meta Delphene because of its great resistance to wiping, rinsing, and perspiration. The new repellents make it worthwhile to treat sports clothing for protection from pests which may cling to gear and bite through thin shirts.

...KEEPS INSECTS AWAY

But most important, meta Delphene repellents have found quick consumer acceptance because they "really work." Put meta Delphene to work for you. Specify it in repellent formulations.

Agricultural Chemicals Division, Naval Stores Department

HERCULES POWDER COMPANY

900 Market Street, Wilmington 99, Delaware

ND 58-1

WATER WATER WATER WATER WATER WATER

If an adequate supply of water is most important in the manufacture of your products—set your sights on a plant site in one of the nine midwestern states served by the Chicago and North Western Railway.

Let us give you the facts on the sources of abundant soft, cold and hot water readily on tap in the available sites served by our railroad. Let us show you, too, how, through our systematic investigation procedure, we can anticipate your queries on . . . .

Power and Other Utilities — **Markets**
Labor Supply — **Community Attitude**
Transportation — **Tax and Zoning Laws**

. . . . and the hundred and one other factors that must be considered before you choose a new plant location. Address:

Nine great Midwestern States are served by North Western

Gene F. Cermak
Director of
Industrial Development
C. & N. W. Ry.
400 W. Madison St.
Chicago 6, Illinois

CHICAGO AND NORTH WESTERN RAILWAY

Chemical Week

TOP OF THE WEEK **NOVEMBER 15, 1958**

- **CPI's air-pollution problems**—bad publicity, governmental restriction—to be aired at national meeting ..... **p. 45**
- **Trend toward bulk sales of fertilizers stirs controversy** among chemical manufacturers ..... **p. 63**
- **Hospitals call for germicidal cleaning compounds** to fight threat of antibiotic-resistant staphylococcus ..... **p. 83**

16 VIEWPOINT

16 OPINION

19 MEETINGS

27 BUSINESS NEWSLETTER

32 AEC threat to end lithium stockpiling spurs producers into diversification, research.

33 Germans lay claim to U. S.-held General Aniline stock, in stunning legal move.

34 Allied sets up Brussels "support" office for closer look at changing European markets. Licensing prospects will get attention.

35 Growing business and government concern over Soviet economic offensive highlighted in American Management Assn. sessions.

41 WASHINGTON NEWSLETTER

45 ADMINISTRATION
Twofold air pollution problem faces CPI management at next week's industry conference: (1) bad publicity; (2) government control measures.

46 Texas court decision may be guide to disputes over local taxation of privately operated, federally owned property.

49 New West German salary survey shows chemical earning increases lagging industry-average gains.

53 PRODUCTION
Instruments and automation bring new look—and new problems—to control labs.

63 SALES
Bags vs. bulk—battle looms on packaging methods to promote fertilizer sales.

66 MCA issues abbreviation code for data-processing systems.

68 National Aluminate plans 20% increase in sales force.

71 RESEARCH
New water-based paint resins from Amoco, and Archer-Daniels-Midland. They swell growing list of paint chemicals plugging safety, solvent economy.

79 TECHNOLOGY NEWSLETTER

83 SPECIALTIES
Makers of germ-killing cleaning specialties are called upon to help hospitals battle antibiotic-resistant staphylococcus infections.

93 MARKET NEWSLETTER

97 MARKETS
New high in fumaric output—9 million lbs.—heightens puzzle over where big growth outlets lie.

105 ENGINEERING
Engineering options: do it yourself; get some outside help; farm it out entirely. Here's how to choose in light of today's special factors.

112 Mines Development switches to sulfate elution for resin-in-pulp uranium-ore processing.

114 Haloid teams xerography with microfilm to simplify engineering—drawing reproduction.

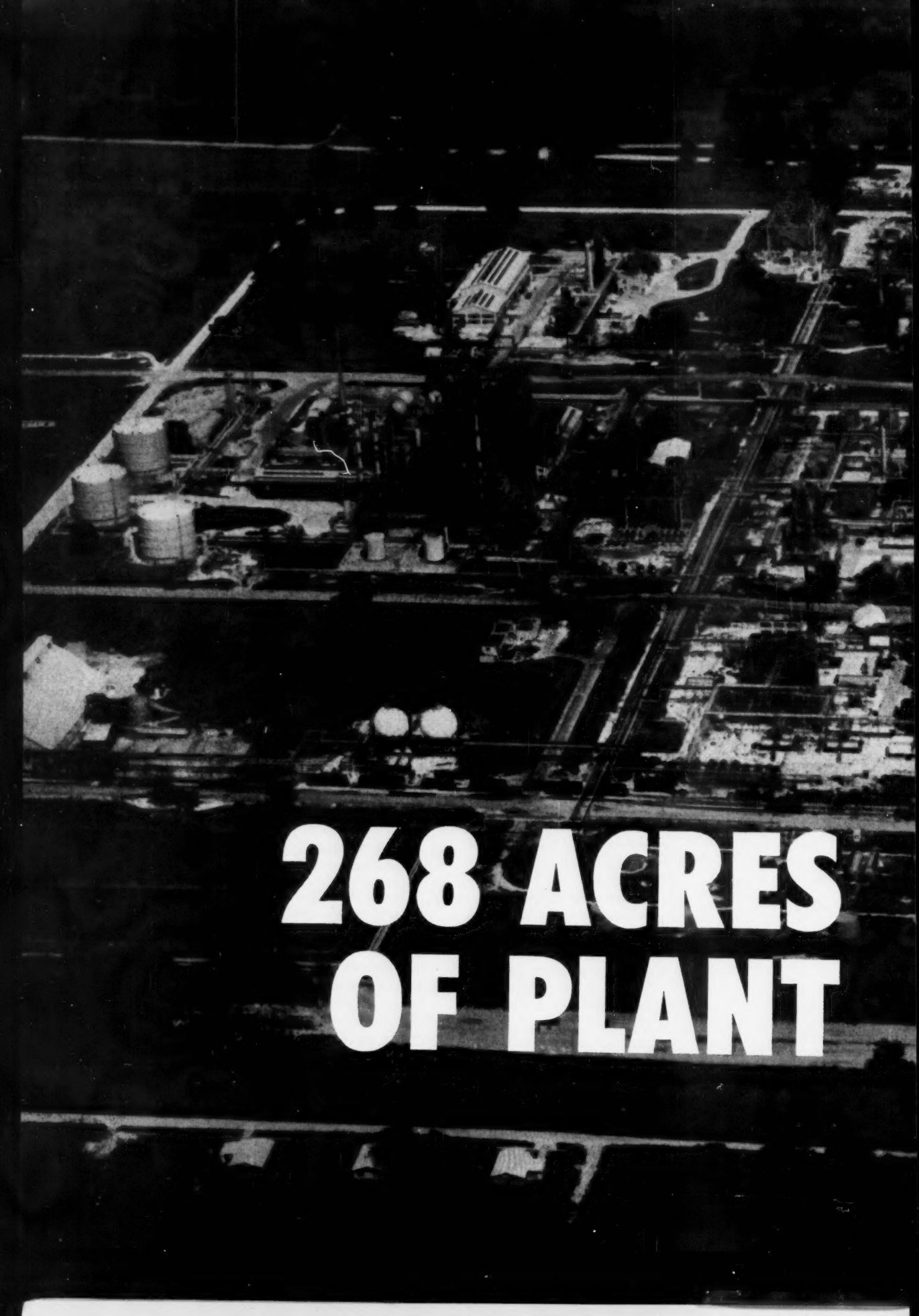
120 CHARTING BUSINESS
Synthetic rubber's share of the U. S. market will climb to 65% this year.

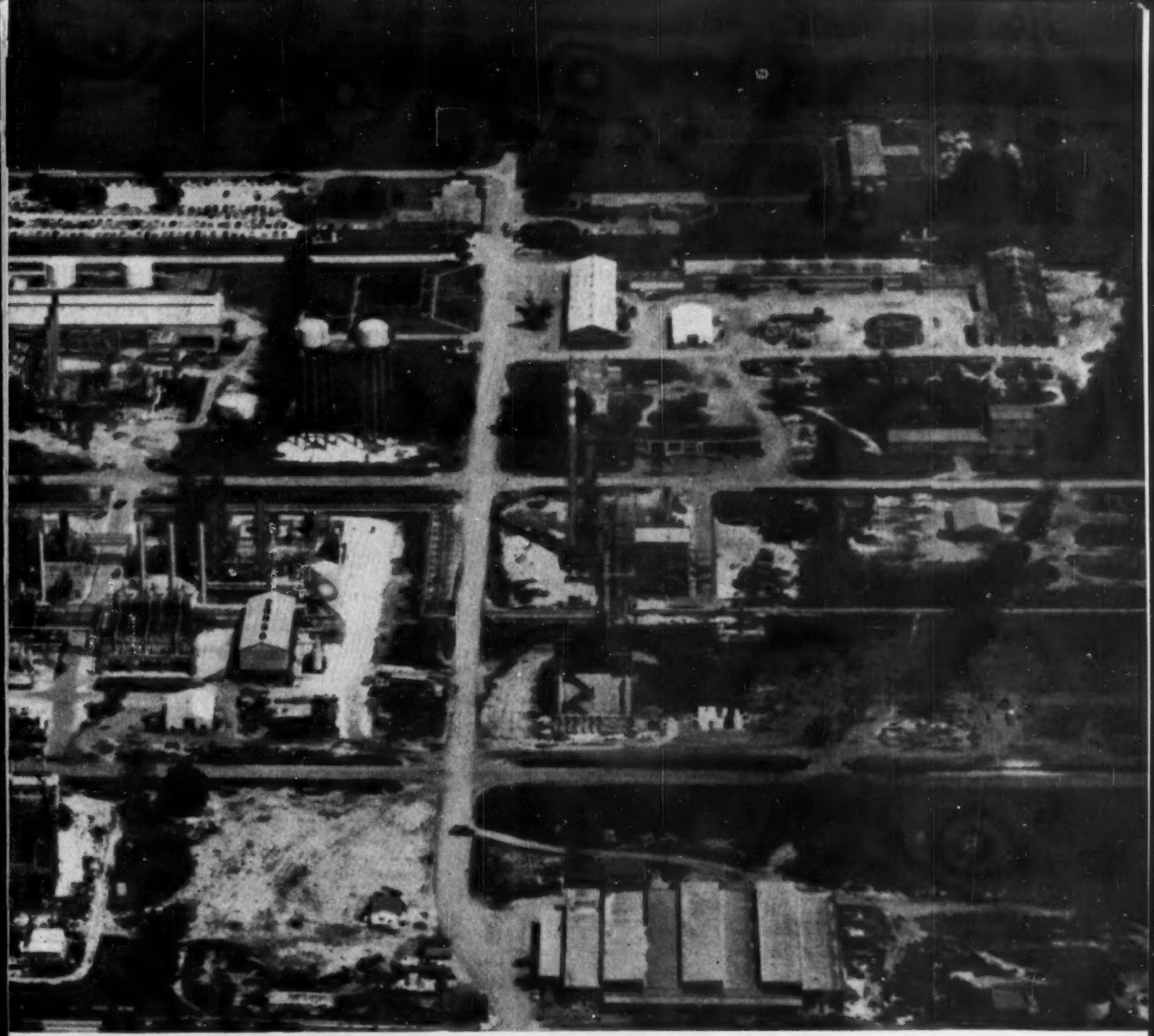
41,746 copies of this issue printed

Vol. 83
No. 20

Chemical Week is published weekly by McGraw-Hill Publishing Co., Inc., 330 W. 42nd St., New York 36, N. Y. Place of publication: 3rd and Hunting Park Ave., Philadelphia 40, Pa. Second-class postage paid at Philadelphia. Subscription: $3/year in U.S.A. Send subscription correspondence and change of address to Fulfillment Manager, Chemical Week. Please see page 14 for subscription requirements.

Postmaster: Please send Form 3579 to Chemical Week, 330 West 42nd St., New York 36, N. Y.


268 ACRES
OF PLANT



This huge petrochemical installation was engineered and constructed by Chemico—working with the client's own technical staff. The facilities cover approximately 268 acres. Designed to utilize the client's own processes, this mammoth, integrated plant was completed by Chemico with a minimum of difficulties and delays. Details of the project were given the closest attention by an organization geared to handle the biggest and most complex chemical and petrochemical process installations.

In the field of general process engineering, few can match Chemico's remarkable record of achievements. Consult Chemico before you decide. Write today for a copy of the new Chemico general bulletin.

CHEMICO

CHEMICAL CONSTRUCTION CORPORATION
525 West 43rd Street, New York 36, New York

CHICAGO • DALLAS • HOUSTON • PORTLAND, ORE. • TORONTO • LONDON • PARIS • JOHANNESBURG • TOKYO

NEW, MONEY SAVING WIREBOUND

COMBINE DIFFERENT PACKAGING MATERIALS FOR

FOR GRANULES & POWDERS

A new type of expendable bulk container is now being used for warehousing, handling and shipping polyethylene resins and cellulose acetate molding powders. Completely prefabricated, it utilizes wood, steel and corrugated fibreboard, with a polyethylene or Kraft bag liner, and conforms to size recommendations of the M.C.A. Two basic sizes are currently being used: a "truck shipper" with a capacity of 22.9 cu. ft. which holds approximately 1,000 lbs., and a "rail shipper" of 50 cu. ft. capacity. To restrain the horizontal thrust of the contents produced by cold flow — which bulges other types of expendable bulk containers 2" and more per face — the new containers utilize wooden intermediate cleats, and thereby limit bulge to a maximum of ¾". Outside wooden vertical slats — not the contents — carry the stacking load, safely permitting tiering during extended periods of storage, even in very humid regions.

A polyethylene or Kraft bag liner, inserted before filling, gives moisture or contamination protection.

Rail Shipper

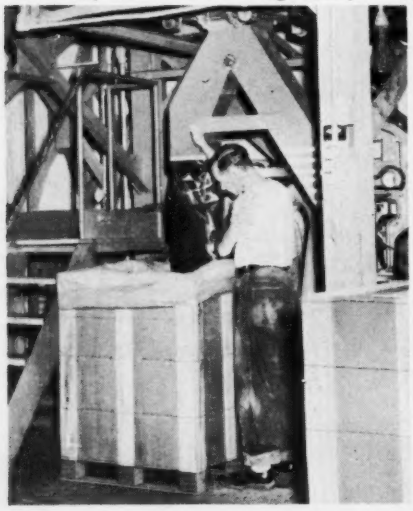
The new bulk rail shipper compares favorably with all other forms of expendable bulk shippers. The wirebound corrugated's capacity is greater, permitting standard 40'6" cars to be loaded with most materials to full minimum carload weight of 70,000 lbs., saving on freight. Of the various types, only the wirebound-corrugated's pallet base provides 4-way entry and can accommodate a hand pallet truck. On a per ton of contents basis, the initial container cost of the wirebound corrugated bulk rail shipper is competitive with other expendable rail shippers. But assembly time is low on the new bulk pack, and filling fast and easy. Even compared to 50 lb. multiwall bags, the wirebound-corrugated rail shipper is often competitive in 1st cost. Where initial container cost per ton of contents is somewhat less for the bags, this is more than offset by the estimated savings in materials handling realized with the big wirebound-corrugated packs.

Truck Shipper

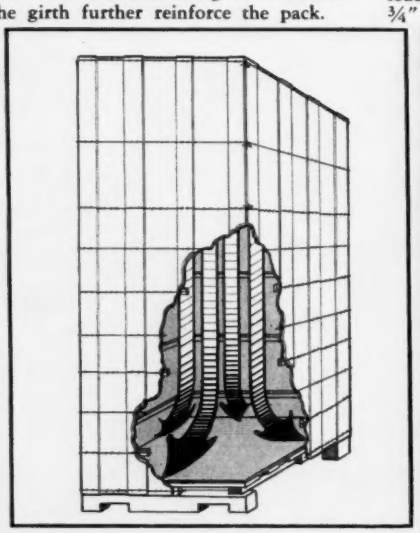
The new wirebound-corrugated 22.9 cu. ft. capacity truck shipper is basically similar in construction to the larger rail shipper. In terms of stacking, it offers greater strength than comparable sizes of other expendable bulk packs. It is assembled faster since the base is an integral part of the container and no strapping is required. It has less bulge, and like the wirebound-corrugated rail shipper, offers contamination or moisture protection, and resistance to fatigue in long term storage — even under extreme humid conditions.

In terms of initial container cost, the wirebound-corrugated truck shipper is reported to cost less than competing expendable bulk shippers.

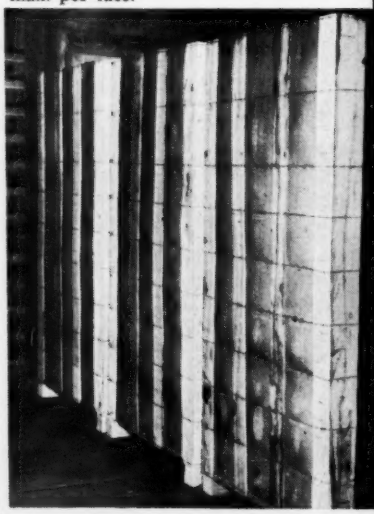
Truck shippers measure 39" x 30½" x 33⅜" inside, save approximately 20% floor space over cylindrical containers, have a tare weight of 56 lbs., and their 4 way pallets have a 3⅜" entry clearance. They can be tiered 4 high safely.



Toward the bottom of the containers the rows of wooden cleats are closer together to restrain the horizontal thrust of the contents. Sandwiched between them and the outside vertical slats is 125 test corrugated board. Steel binding wires around the girth further reinforce the pack.



Rail shippers can be loaded 3 wide and 13 long in standard 40' 6" rail cars, and even with contents such as poly resins, full minimum car weights can be developed. 4 way pallet base permits loading with skids in direction of travel. Unloading is easy since bulge cannot exceed ¾" max. per face.



FOR GRANULES, POWDERS, LIQUIDS

THE ULTIMATE IN SAFETY AND CONVENIENCE

FOR LIQUIDS IN BOTTLES

The first I.C.C. approved disposable packs for nitric acid and other similarly classified liquids are prefabricated wirebound-wooden containers with interior packing of polystyrene. Lightweight and inexpensive enough to be thrown away after only one trip, the packs are easy to handle and palletize well.

Users' report having the container and interior packing delivered to their bottle suppliers; there they are assembled, packed and forwarded to the filling location where the empties are removed, filled, labeled and repacked for shipment.

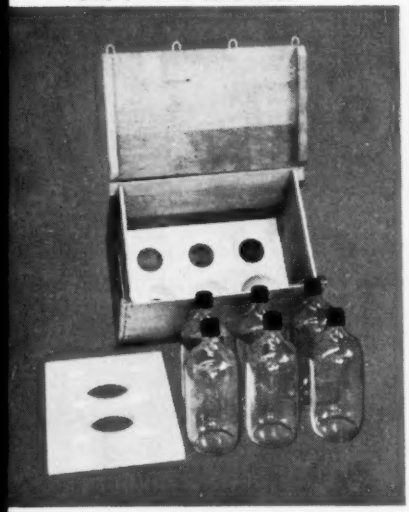
Six 5 Pint Bottles

The six bottle size uses the polystyrene in *molded* pads for top and bottom. The pads hold the bottles where the glass is heaviest, keeping the bottles apart and free from breaking.

Twelve 20 oz. Bottles

This pack utilizes the same basic wirebound design of outside container, but uses an *expanded* polystyrene core with Kraft paper bonded to each side as "cells" to keep the bottles separate and safe.

Polystyrene pads weigh only 12 oz. in new disposable wirebound pack for six 5 pint bottles, keeping weight of pack down to 19 lbs., compared to returnable's 40 lb. tare. Cushion material presents no hazard with acids. Other packs are available for 12 — 20 oz. bottles and 6 — 16 oz. bottles.



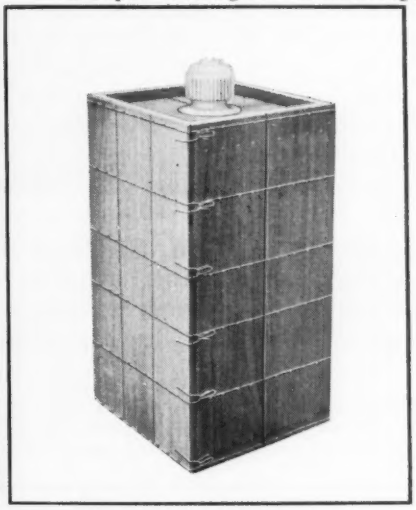
SEE THEM IN BOOTH NO. 727 NAT'L. PLASTICS SHOW

FOR LIQUIDS IN CARBOYS

Lightweight, wirebound-wooden jackets for polyethylene carboys have been authorized by the I.C.C. as an approved container with a number of regulated liquids, including hydrochloric acids. This safe returnable shipping container reportedly costs only ⅓ as much as a competitive container for poly carboys, yet it is nearly indestructible under regular conditions.

Available in 13, 6½ and 5 gal. sizes, the wirebound and poly carboy combination weighs ½ as much as the same size glass carboy jacketed in a nailed wooden box. It is a prefabricated container that is easy to assemble and handle. The 13 gallon size has a tare weight of 32 lbs., including wirebound and "2T" carboy.

The re-usable wirebound jacketed polyethylene carboy is easy to fill and empty by removing the leakproof screw cap. Special completely enclosed jackets are available for export use. Other options include lifting handles to fit fork trucks, and special treating for outdoor storage.



Made and Sold By:

Chicago Mill & Lumber Co.
33 South Clark Street
Chicago 3, Illinois

Crosby Forest Products Co.
Picayune, Mississippi

Elberta Crate & Box Co.
Tallahassee, Florida

General Box Co.
1825 Miner Street
Des Plaines, Illinois

Great Southern Wirebound Box Co.
Magnolia, Mississippi

Indianapolis Wire Bound Box Co.
Fernwood, Mississippi

Jones Box & Mill Division
The R. T. Jones Lumber Co., Inc.
344 Delaware Avenue
Buffalo 2, New York

Lange & Crist Box & Lumber Co., Inc.
Clarksburg, West Virginia

David M. Lea & Co., Inc.
P. O. Box 1538
Richmond 12, Virginia

Main Brothers Box & Lumber Co.
Karnak, Illinois

*Marinette & Menominee Box Co.
Marinette, Wisconsin

The Martin Bros. Container & Timber Products Corp.
39 Blucher Street
Toledo, Ohio

Maxwell Brothers, Inc.
2300 South Morgan Street
Chicago 8, Illinois

T. R. Miller Mill Co., Inc.
Brewton, Alabama

Rathborne, Hair & Ridgway Box Co.
1440 West 21st Place
Chicago 8, Illinois

Western Wirebound Box Co.
P. O. Box 6148
Portland 9, Oregon

**Except carboy and bottle boxes.*

For more complete technical details, write:

Package Research Laboratory
Rockaway, New Jersey.

C_{16}-C_{18} acids

How To Move Up A Step . . . And Save Money, Too!

Men who use fatty acids in the C_{16} to C_{18} range are often pleasantly surprised when they discover ADM's Hydrofol Acids. They find it is possible to work with a *better* product which is also a bargain purchase.

The historical way (still sometimes used) to make these products was to first turn natural fats into acids. Then you removed the oleic acid by pressing. Double- and triple-pressing finally yielded a usable quality stearic acid.

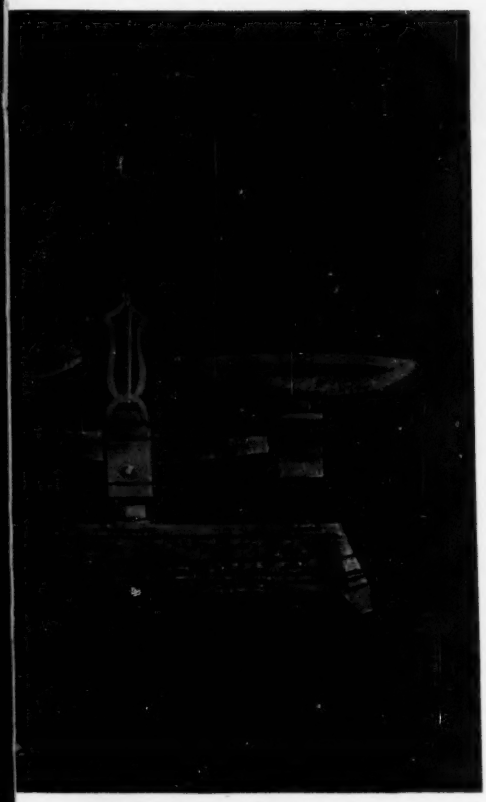
Hydrofol Acids are made by selective hydrogenation of specially processed animal, vegetable and marine oils. This produces superb acids synthesized by precision-controlled methods. They contain no moisture, soaps or other impurities.

The modern ADM $C_{16}-C_{18}$ Hydrofol Acids contrast with their historical counterpart in about the same way that improved modern shortenings are substitutes for Grandmother's lard pail.

Hydrofol Acids sell at an economical price. But most people buy them first of all because they are a better product.

WANT MORE DETAILS? Write today for bulletins on specific acids or ask to talk over any of your specific problems with one of our ADM Chemical Technical Representatives.

* ***Chemifats*** ADM's collection of widely varying materials, have one thing in common . . . all are derived from the fats and oils of nature. Hence, their name. All are relatives in the general family of aliphatic or straight chain hydrocarbons or their derivatives.



The Research Chemists' Corner

How Radiation Chemistry Sheds New Light On Straight-Chain Hydrocarbons

A while back Archer-Daniels-Midland people decided to snoop into the effects of high energy radiation on some of their saturated straight-chain hydrocarbons. Under the impact of the terrific energies from nuclear radiation, both the saturated hydrocarbons and some of the straight-chain olefins stolidly clung to their normal personalities. They sat there unmoved and unimpressed by sizzling gamma rays and whizzing electrons.

Key to the situation is the orderly straight-chain structure of hydrocarbons derived from tallow, marine, or vegetable oils, quite unlike the branched-chain ones made from petroleum. The latter are less stable under radiation because high energy waves or particles have a fairly easy time splitting off the side chains. This leads to oxidation, polymerization, and other instability in the original molecular structure of the petroleum-derived hydrocarbons.

Since radiation isn't as likely to tamper with the long, straight-chain saturated hydrocarbons . . . and since they are excellent lubricants and lube additives . . . they are clearly of interest in lubricants for use in nuclear power plants. Other uses in radiation bombarded locations are easy to contemplate.

If you are involved in developing new products or improving old ones . . . if you are looking for a startling new chemical with untapped potential . . . why not give a little attention to the saturated hydrocarbons obtained by hydrogenation of straight-chain olefins? We'll be pleased to send you technical information, samples, or have an ADM Chemical Technical Representative call on you.

WATER-RESISTANT sodium and aluminum-based greases are much improved when ADM Hydrofol Acid AB is used in their formulation. Hydrofol Acid AB's combination of fatty acids with more than half C_{20} and C_{22} chain lengths gives excellent water repellency.

GET YOUR COPY of the new ADM Chemical Products catalog. This 52-page book gives specifications of the many types of aliphatic chemicals made by ADM. Write on your company letterhead today.

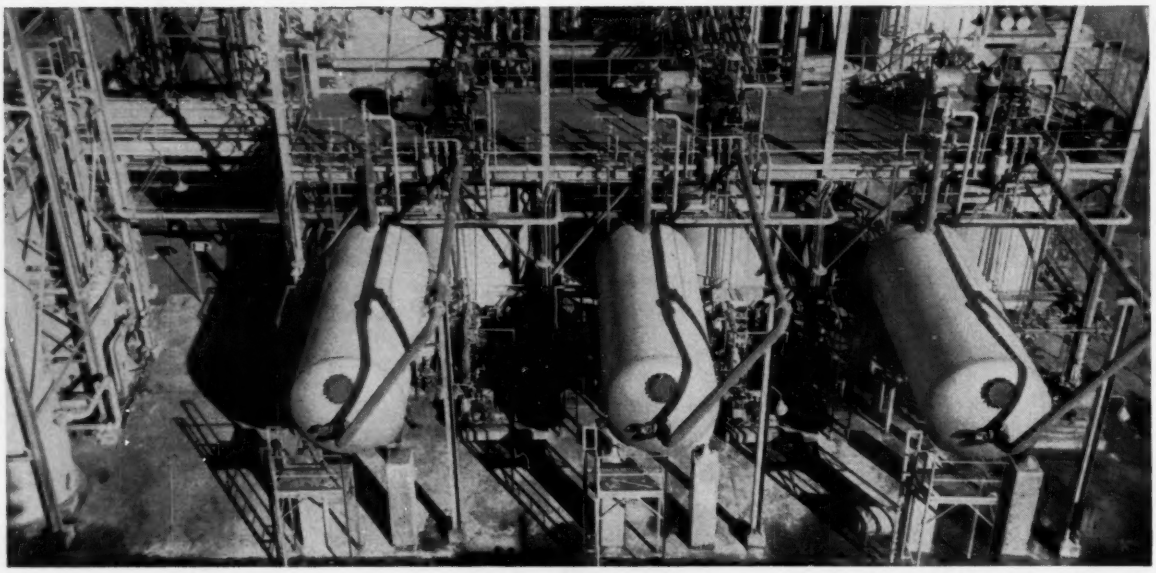
Archer-Daniels-Midland

Hydrafol PRODUCTS

CHEMICAL PRODUCTS DIVISION
707 Investors Building · Minneapolis 2, Minnesota

Chemifats from Nature's Wondrous Warehouse

PFAUDLER

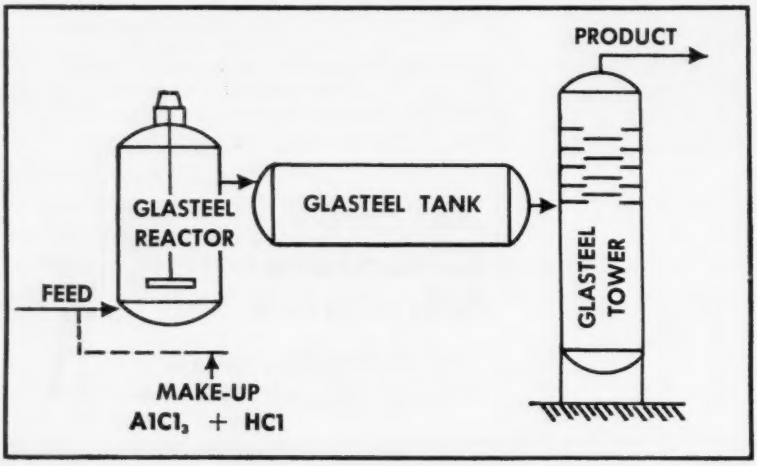


Corrosion-free, contamination-free processing is achieved with Glasteel equipment by Phillips Petroleum Company at its Borger, Texas, Natural Gas Liquids Separation and Process Center where various hydrocarbon liquids are converted to other products.

How Phillips Petroleum saves on equipment for processing natural gas liquids

Phillips Petroleum uses a highly corrosive $AlCl_3$ and HCl catalysis to process natural gas liquids.

The ability of these active chemicals to corrode non-resistant process equipment and to contaminate the product is made even stronger by the high temperature and operating pressure of the process.



Complete Glasteel protection

So wide is the Pfaudler line of process equipment, Phillips was able to select all the following from our standard line: Three Glasteel reactors. Three Glasteel horizontal tanks. Two Glasteel towers. One Glasteel recovery tank.

Problem-Free Operation

Products have poured out of this plant without any problem of product contamination or Glasteel equipment loss due to corrosion.

Now a second plant — Probably the best proof of Glasteel's success in the process is the fact that Phillips is now building a second plant which will also be of Glasteel construction.

If you would like a closer look at the Glasteel line, send for the new Buyer's Guide to Pfaudler Corrosion Resistant Process Equipment.

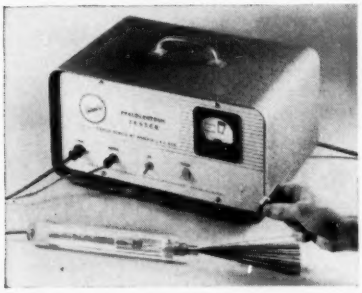
CORROSIONEERING NEWS

New electronic instrument gives safe, sure tests of glassed steel

The new PFAUDLERTRON glass tester, developed by Pfaudler, achieves superior operational efficiency over previous devices. It has been selected as the industry standard for field testing of glassed-steel equipment used in highly corrosive environments.

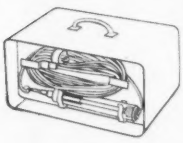
It has a stabilized voltage. There is no fluctuating output.

It gives a fast, visual signal. The neon handle lights instantly when exposed metal is contacted.



There are two separate probes: a brush for open areas and an interchangeable needle point for nozzles and other confined areas.

The Pfaudlertron is completely electronic. There are no mechanical vibrators or relays.



This device is completely safe. Cannot puncture sound glass. No danger of dielectric breakdown of glass.

The Pfaudlertron is compact, portable and provides self-storage of handle, probes, and lead.

Send the coupon for details.

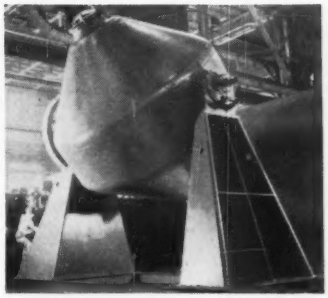
This single unit dries, blends, concentrates, impregnates, reacts, and coats

The Pfaudler Conical Dryer-Blender performs multiple operations in one cycle so that process time and materials handling are reduced, investment is limited to fewer units and valuable floor space is saved. Even in single operations it assures fast drying, easy clean-up, improved heat transfer, lower storage and labor costs.

It's glassed inside. No corrosion. No problems with sticky materials. No contamination from metallic surfaces.

The unit is designed to handle heat sensitive materials as well as those requiring higher temperatures. Operating temperatures to 450°F. are possible under recommended conditions. Standard design is for full vacuum and up to 30 psig. Higher pressures can be handled with minor modifications.

Pretesting service and advice—We'll be glad to make test runs with your product. We also have units which we loan for testing in your plant. Both services are available at a nominal charge. You can also draw on our long research and testing experience with all sorts of products for advice in planning your own processing.



Checking the coupon will bring you a helpful bulletin on the dryer-blender.

1959 Buyer's Guide to Process Equipment

Printing has just been completed on a new, up-to-date edition of the *Buyer's Guide to Pfaudler Corrosion Resistant Process Equipment.*

This 1959 issue gives all the more pertinent facts about our complete line of equipment and services, all compacted into twelve pages.

It includes data on materials of construction, including Glasteel and stainless steels as well as the popular alloys; on reactors, columns, heat exchangers and condensers, storage and mixing tanks, evaporation equipment, and accessory items.

It's easy to get a copy. Just check the coupon.

CHEMICAL PROCESS EQUIPMENT

THE PFAUDLER CO., *a division of* **PFAUDLER PERMUTIT INC.**
Dept. CW-118. ROCHESTER 3, NEW YORK

Please send information on: ☐ 1959 Buyer's Guide; ☐ Conical Dryer-Blender, Bul. 963; ☐ Pfaudlertron, Bul. 970.

Name .....

Title .....

Company .....

Address .....

City ..... Zone ..... State .....

See Chemical Engineering Catalog, pp. 1407-1418 for complete Pfaudler line.

365 days later...

battered... dog-eared

...but still in there, working like crazy!

It's amazing what a beating the Chemical Week BUYERS' GUIDE can take . . . and bounce right back!

Many of its users grab for it more than ten times a month. A third tell us they use it once a week, or more frequently. And 89 percent keep it right handy on desk or in file drawer... just in case.

Why such affection? Because it's so downright dependable... actually 12 directories-in-one . . . over 7,000 product listings . . . almost 400 bread-and-butter, highly serviceable advertising pages. CPI buyers use it more because it gives them so much more—74 percent of those CW BUYERS' GUIDE users prefer it over any other catalog or directory.

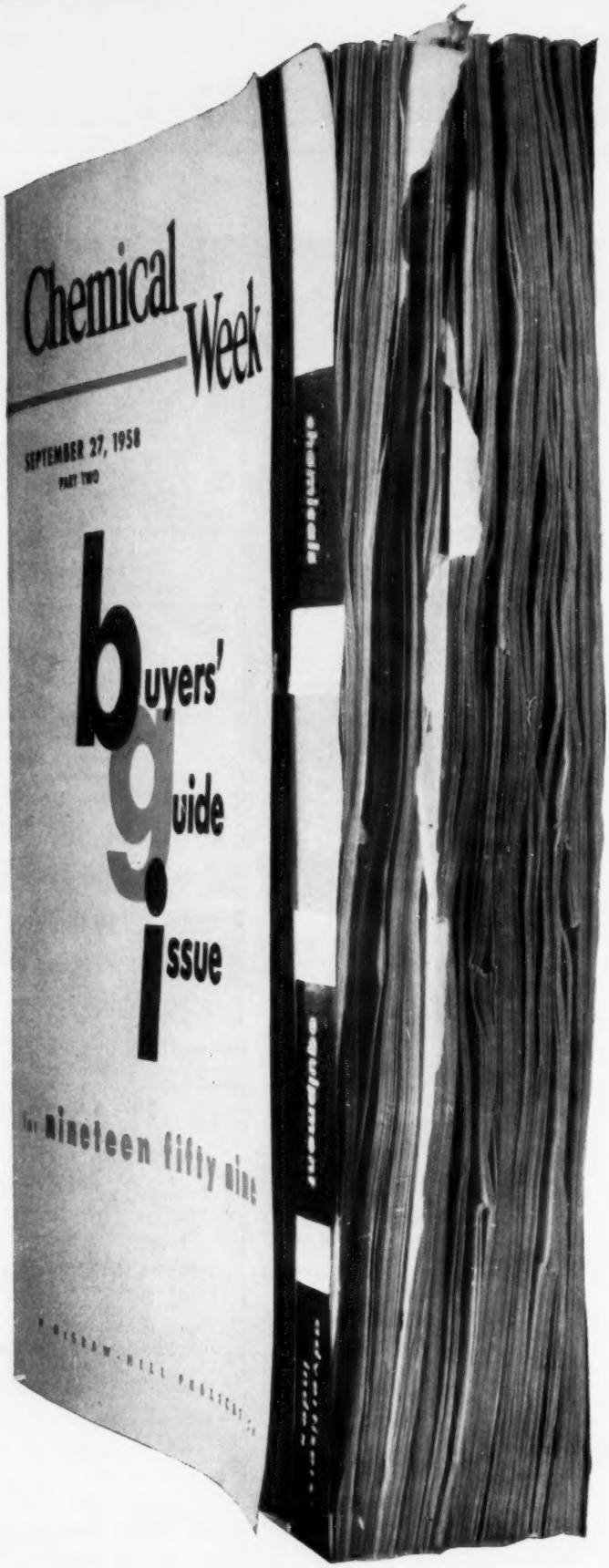
One missing ingredient — who are these men? Some so-called selectively picked distribution list? Ah, no—they're the paid subscribers of Chemical Week, itself... 43,000 to 46,000 (*for the '59 edition*) "management men in all functions"... men who have the *power* to buy after they know *what* and *where* to buy.

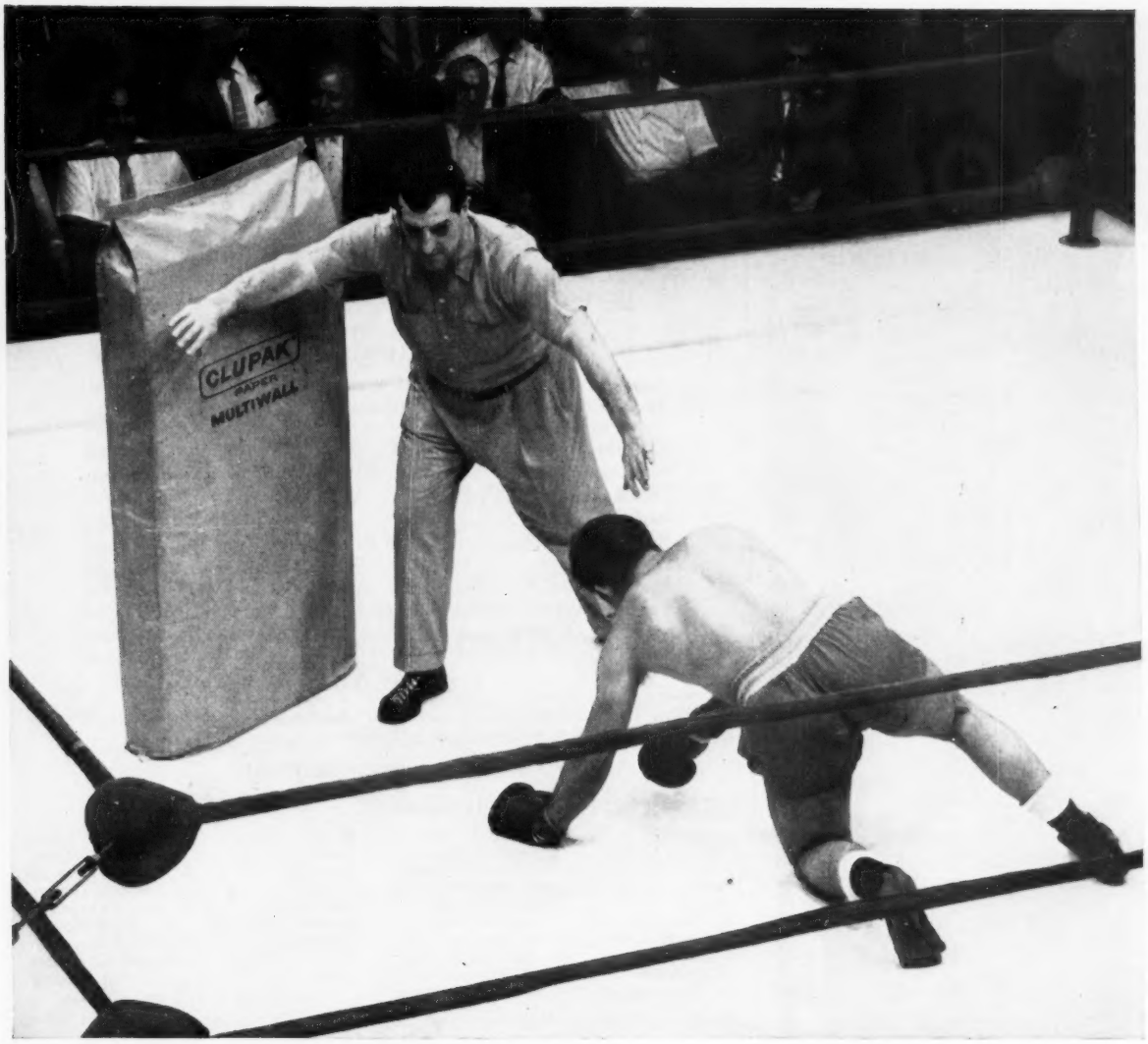
And that's why you should buy all the advertising pages that make sense for your needs in the 1959-'60 BUYERS' GUIDE. *Reserve your space today!*

PUBLISHED . . . SEPTEMBER 26
CLOSING (R. O. B.) . . . . JUNE 15
INSERT CLOSING . . . AUGUST 1

CHEMICAL WEEK

BUYERS' GUIDE





THE Toughness Champ WINS BY A TKO

OUR CLUPAK* MULTIWALL

TKO—technical knockout—breaks ordinary bags in test after test. But these new Clupak multiwalls stand up fine! They're that much tougher than the ordinary multiwalls. And this is proved in actual use—in extra rough handling.

The reason: our new multiwalls are made with Kraftsman Clupak paper—its patented, built-in "stretch" gives much greater toughness.

Yet, our new bags *cost no more* than the old ones!

West Virginia's Clupak multiwalls are available now in these types: Pasted Open Mouth, Pasted Valve, Sewn Valve, Sewn Open Mouth and Stepped End.

All of them are lighter and tougher. Try them . . . on your next carload order, let us include a trial shipment of 5,000 of our Clupak multiwalls. Call or write:

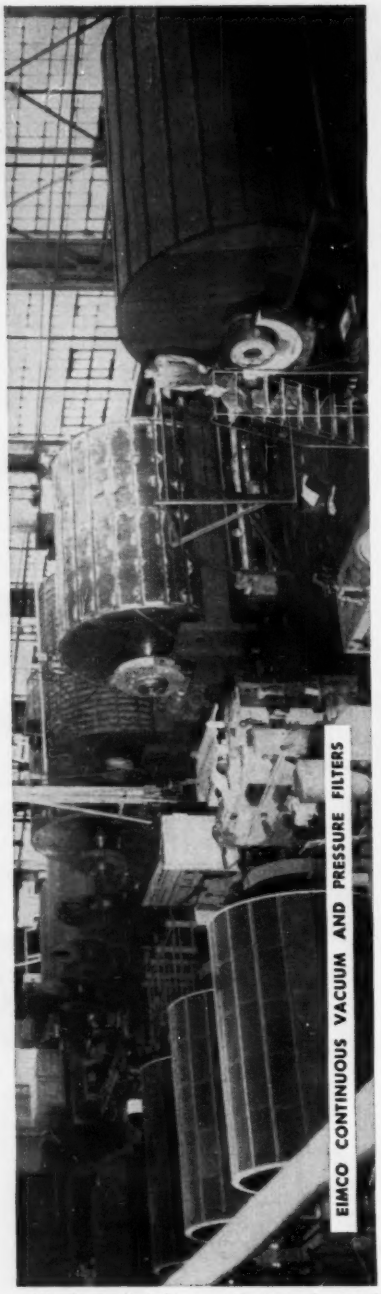
MULTIWALL BAG DIVISION

*Clupak, Inc.'s trademark for extensible paper manufactured under its authority.

WEST VIRGINIA PULP AND PAPER COMPANY

230 Park Avenue, New York 17, N. Y.

PLANTS: TORRANCE, CALIF. • ST. LOUIS, MO. • NEW ORLEANS, LA. • WELLSBURG, W. VA.



We hope that this typical view of one of Eimco's assembly bays will prompt you to enquire "Why is the Eimco factory the largest of its kind in the building of pressure and vacuum filters?" We believe the answer to be that more users have found that Eimco's combined facilities — research and development, completely integrated manufacturing, and unsurpassed service — make the investment in Eimco filters sound and economical.

B-358

THE EIMCO CORPORATION

MANUFACTURING DIVISIONS
Salt Lake City, Utah

RESEARCH AND DEVELOPMENT
Palatine, Illinois

SALES • ENGINEERING • SERVICE
All Principal Cities Throughout the World

Chemical Week

Wallace F. Traendly ..... Publisher
Sidney D. Kirkpatrick ..... Editorial Director

Howard C. E. Johnson ..... Editor-in-Chief

Ralph R. Schulz ..... Managing Editor
William Olcott ..... Assistant Managing Editor
J. Robert Warren ..... Assistant Managing Editor
Donald P. Burke ..... Associate Editor
Anthony J. Piombino ..... Associate Editor

DEPARTMENTS

Administration .... Cooper R. McCarthy, *editor;* Leo J. Northart
Business News ..... Homer Starr, *editor;* Robert L. Porter, Bruce Bendow
Engineering ..... Kenneth C. Wilsey, *editor;* Philip A. Untersee
Markets ..... Jorma Hyypia, *editor;* Frank S. Sciancalepore
Production ..... Herbert C. Short, *editor*
Reports ..... Vincent L. Marsilia, *editor*
Research ..... Joseph F. Kalina, *editor;* Sanford J. Durst
Sales ..... John M. Winton, *editor*
Specialties ..... Richard J. Callahan, *editor;* Mary Thompson
Copy .. William Mullinack, *editor;* Henry S. Gordon, John Philbin
Art .... R. D. S. Marshall, *director;* Tony Giordano, Dolores Able
Buyers' Guide ..... E. L. Sisley, *editor*

REGIONAL EDITORS

Far West Emil J. Mikity, San Francisco
Southwest .... James A. Lee, Houston
Midwest .... T. Peter Forbath, Chicago

NATIONAL AND WORLD NEWS

Economics ..... Dexter M. Keezer
Manager, News Bureaus ..... John Wilhelm

Atlanta ..... Charles T. Dixon
Chicago ..... Stewart Ramsey
Cleveland ..... William Meldrum
Dallas ..... Kemp Anderson, Jr.
Detroit ..... Donald MacDonald
Los Angeles ..... John H. Kearney
San Francisco ..... Margaret Ralston
Seattle ..... Ray Bloomberg
Washington ... George B. Bryant, Jr.
Correspondents in 75 principal cities.

Beirut ..... O. M. Marashian
Bonn ..... Morrie Helitzer
Caracas ..... John Pearson
London ..... Robert Gibson
Melbourne ..... Alicja Grobtuch
Mexico City ..... Peter Weaver
Moscow ..... William J. Coughlin
Paris ..... Robert E. Farrell
Tokyo ..... Sol Sanders
Correspondents in 61 principal cities.

Robert S. Muller ..... Advertising Sales Manager

Business Department ..... Alvin J. Babkow, *manager*
Sales Promotion Department ..... Fred E. Lesner, *manager*
Market Service Manager ..... Margaret J. Swikart
Advertising Makeup ..... Robert L. Maier
Advertising Salesmen ..... See Adv. Index, p. 118

Paul W. Erb ..... Circulation Manager
Frances Regan ..... Reprints

NOVEMBER 15, 1958 **Vol. 83, No. 20**

Chemical Week (including Chemical Specialties and Chemical Industries) is published weekly by McGraw-Hill Publishing Co., James H. McGraw (1860-1948), founder. EXECUTIVE, EDITORIAL, CIRCULATION and ADVERTISING OFFICES: McGRAW-HILL BUILDING, 330 West 42nd St., New York 36, N.Y. See panel below for directions regarding subscriptions or change of address. Donald C. McGraw, President; Joseph A. Gerardi, Executive Vice-President; L. Keith Goodrich, Vice-President and Treasurer; John J. Cooke, Secretary; Nelson Bond, President, Publications Division; Harry L. Waddell, Senior Vice-President; Ralph B. Smith, Vice-President and Editorial Director; Joseph H. Allen, Vice-President and Director of Advertising Sales; A. R. Venezian, Vice-President and Circulation Coordinator.

Subscriptions to Chemical Week are solicited from management men in the Chemical Process Industries in administration, production and plant operation, design and construction, research and development, sales and purchasing. Position, company connection and nature of company's business, products and approximate number of employees must be indicated on subscription application. Send to address shown in panel below.

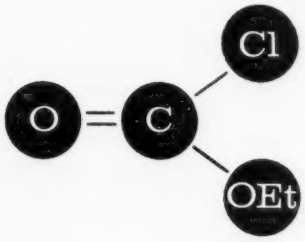
United States and United States possessions subscription rate for individuals in the field of the publication, $3 per year; single copies, 35c. Foreign subscription rates per year: Canada, $4, other Western Hemisphere countries, $15; all others, $25, payable in advance. Printed in U.S.A. Title registered in U.S. Patent Office.

© Copyright 1958 by McGraw-Hill Publishing Co., Inc. All rights reserved. Unconditional Guarantee: the publisher, upon direct request from any subscriber to our New York office, agrees to refund the part of the subscription price applying to copies not yet mailed.

Send subscription correspondence and change of address to Fulfillment Manager, Chemical Week, 330 West 42nd St., New York 36, N. Y. Subscribers should notify Fulfillment Manager promptly of any change of address, giving old as well as new address, and including postal zone number, if any. If possible, enclose an address label from recent issue of Chemical Week. Please allow one month for change to become effective.

Have you considered

ETHYL CHLOROFORMATE



as a route to

Carbonates and Carbamates:

$ROH + EtOCOCl \longrightarrow ROCOOEt + HCl$

$RNH_2 + EtOCOCl \longrightarrow RNHCOOEt + HCl$

Specialty Isocyanates:

$RNH_2 + EtOCOCl \longrightarrow RNHCOOEt$

$RNHCOOEt \xrightarrow{heat} RNCO + EtOH$

Polyurethanes:

$EtOCOCl + H_2NR'NH_2 \longrightarrow EtOCONHR'NHCOOEt$

$EtOCONHR'NHCOOEt + HOR''OH \longrightarrow$ polyurethane + EtOH (by transesterification)

Ethyl Chloroformate is a reactive intermediate which offers interesting possibilities in the production of polyurethanes, polycarbonate plastics, pharmaceuticals, flotation agents, perfumes, plasticizers, dyestuff intermediates and other organic chemicals. This versatile material is available in commercial quantities.

Chloroformates

FMC has broad experience in the field of chloroformates and would be interested in considering manufacture of chloroformates or derivatives of chloroformates that may be of special interest to you.

New Data Available

FMC has just published an expanded Technical Bulletin on Ethyl Chloroformate.

Write for your copy of Bulletin No. 10.

fmc
FOOD MACHINERY AND CHEMICAL CORPORATION

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION

Chemicals and Plastics Division

161 EAST 42ND STREET, NEW YORK 17, N. Y.

VIEWPOINT

THE DEMOCRATIC SWEEP was greater than anticipated. And it will result in some substantial changes in the labor legislation battle that business must fight next year. Note these points:

- The coalition of conservative Democrats and Republicans no longer has its accustomed control in either the House or the Senate.
- The leadership of union labor, as McGraw - Hill's Washington bureau chief puts it, "has never been bashful in presenting its bill." This year, it will insist that it's time for broad changes in labor laws.
- In general, labor leaders are not too interested today in correcting labor racket practices such as those uncovered by the McClellan committee. But these labor cynics will likely push an antiracketeering bill again next year in order to shirttail other provisions into law.

The past session's Kennedy-Ives bill is a good example of this tactic. That bill (or a blood brother) will probably be reintroduced in '59. While Kennedy-Ives would have done a fair-to-middling job of correcting labor abuses, it (1) would have made union membership compulsory in some fields, (2) would have reduced the management responsibilities of supervisory personnel, (3) would have hampered many nonbargaining-related employee relations programs.

Is there a chance that good labor legislation will come out of the 86th Congress? Yes, but the probability is small. A no-legislation stalemate—perhaps via a Presidential veto—seems most likely.

Nonetheless, we urge that business representatives get together to draft a new legislative proposal. Such a bill should do a better job than Kennedy-Ives in protecting workers from union leaders; it should close the current secondary-boycott loopholes; and it should protect employees from Shefferman-type management-labor boss collusion—without disturbing management-employee relations in general.

H. C. E. Johnson

Editor-in-Chief

OPINION

Frank Talk

TO THE EDITOR: [Re] your editorial (*CW, Oct. 4, p. 9*) dealing with the role of businessmen in politics. For some time, we have been trying to talk frankly to our employees, through our company publication, with respect to controversial issues, such as the "right to work" laws. We plan to continue to lay it on the line in talking about issues that we feel affect the welfare of the company, its employees and its stockholders.

RALPH WINSLOW
Vice-President and Assistant to the President
Koppers Co., Inc.
Pittsburgh, Pa.

Antibiotics Report

TO THE EDITOR: Although I was unable to attend the [antibiotics] symposium, the reports on the meeting that I received indicate that the papers were of the high quality befitting this internationally known conference. I found your report (*CW, Oct. 18, p. 65*) interesting and well written.

MAX TISHLER
President
Merck Sharp & Dohme
Rahway, N.J.

TO THE EDITOR: It is interesting to note (*CW, Oct. 18, p. 65*) another possible addition to the increasingly large family of antibiotics effective against Gram-positive bacteria.

We certainly shall be interested in the results of the clinical trials now in progress.

JASPER H. KANE
Vice-President in charge of research and development
Chas. Pfizer & Co., Inc.
Brooklyn, N.Y.

Aerogel Dangers?

TO THE EDITOR: With reference to your article (*CW, Oct. 25, p. 92*) on silica aerogel, I would like to point out that this formed one of the more important subjects of discussion at the recent National Pest Control Assn. convention in Washington, D.C.

I would like to bring to your attention that, despite the nontoxic character of silica aerogel and despite their amorphous noncrystalline character that presumably eliminates the direct risk of silicosis in their constant use, these materials received no clear bill of health from the safety angle.

Although the risk to the person on whose premises the material is used is probably extremely small, the hazard may increase with the constancy of exposure, such as would be undergone by professional exterminators using the material. It was pointed out at the convention that the professional user must always wear a good dust mask. Some deleterious effects from the handling of the material have been observed and others, unknown at this early stage, may exist.

In short, it would seem that, in the interest of the health of the thousands of working men and self-employed persons engaged in pest control, a great degree of caution should be exercised before going overboard with this technically promising material.

Apart from the hazards, there is no doubt that these materials would be most effective weapons against insects, particularly those that have acquired a high resistance to chlorinated hydrocarbon and chlorinated phosphate insecticides.

MAX CARASSO
Vice-President
Abalene Pest Control Service, Inc.
New York

Latex Paint Figures

TO THE EDITOR: . . . It is stated (*Oct. 4, p. 93*) that acrylic latexes account for about 5% of the gallonage of water-thinned paints, compared with about 10% for vinyl acetate copolymers and 85% for styrene butadiene.

As is common with many vehicle suppliers, we attempt to keep abreast of the trend in the latex paint industry, and our information indicates that although the percentages quoted in your article were correct as of late 1955 or early '56, the percentages of

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: H. C. E. Johnson, Chemical Week, 330 W. 42nd St., New York 36, N. Y.

ADVERTISEMENT—*This entire page is a paid advertisement* *Prepared by U. S. Industrial Chemicals Co.*

U.S.I. CHEMICAL NEWS

Nov. 15 ★ A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1958

Methods for Making Borane Fuels Now Being Piloted

Operation of a high-energy-fuel pilot plant for the Air Force began recently at AFN, Inc., Henderson, Nevada. The company is owned jointly by American Potash, Food Machinery, and the U.S.I. Division of National Distillers (see U.S.I. Chemical News—February 1958).

This new plant is a process development unit designed, engineered and constructed by AFN under Air Force sponsorship to develop a large-scale production method for alkyl borane high energy fuels, materials of great importance to the nation's missile program.

ATTENTION: Users of Specially Denatured Alcohol

Citric acid may now be added to toilet preparations containing tartar emetic to prevent clouding, according to an industry circular issued by the Alcohol and Tobacco Tax Division.

Since issuing the regulation that tartar emetic or sucrose octa-acetate must be added to bay rum, alcoholado, or alcoholado-type toilet waters made with specially denatured alcohol, the Division has discovered that tartar emetic produces cloudiness in formulations.

The Division recommends the use of one-quarter grain of citric acid per fluid ounce of finished product to eliminate cloudiness. The circular says: "Permittees now holding approved formulas for the manufacture of alcoholado or bay rum containing tartar emetic and who elect to add citric acid . . . need not submit new formulas on Form 1479-A. However, formulas submitted in future for these products in which citric acid is to be used must show such use."

Cetyl Alcohol "Blanket" Lowers Water Evaporation

Researchers have discovered that a one-molecule-thick layer of cetyl alcohol, spread on the surface of water in a reservoir, can reduce evaporation by as much as 65%. A pound of this harmless chemical will cover 10 acres of surface and last about 3 days against the action of wind and dirt. It is calculated that a pound per acre per month provides adequate protection, and that millions of dollars could be saved this way yearly in areas where water is usually in short supply.

Cetyl alcohol acts by spreading over the water surface to seal out air. It must extend to the reservoir banks to be effective. Its self-healing property insures that there will be no uncovered places on the surface for long, should wind or dirt break the coating.

Some practical problems must be solved before usage can become widespread. These include methods of applying and replacing the chemical. One solution being examined involves placing pelletized cetyl alcohol in screens on floats or buoys on the water.

Tests Confirm That Methionine Is Absorbed Through the Skin

Known Healing Properties of Methionine, Plus Proof Of Skin Absorption, Suggest Wide Application in Topically Applied Cosmetics, Toiletries, Medications

It has been established by thorough study that methionine is absorbed by the body when applied to the skin. Radioactive tracer studies made with guinea pigs reveal that administration of methionine by skin has nearly half the efficiency of oral feeding.

Methionine is an essential sulfur amino acid, a precursor of cystine in the skin, hair, nails and other tissues. It has been shown previously that methionine administered orally:

- decreases healing time of surface wounds
- cures some forms of diaper rash
- aids in disappearance of warts
- protects against radiation damage
- helps reduce tumor growth
- overcomes urinary infections

Experience with topical application has revealed that methionine:

- promotes rapid healing of burns and other wounds
- heals varicose leg ulcers
- promotes good skin tone
- has helped in treatment of falling hair

Now that definite experimental data has been compiled on the rate and extent of methionine absorption through the skin, it is felt that its healing properties can be utilized

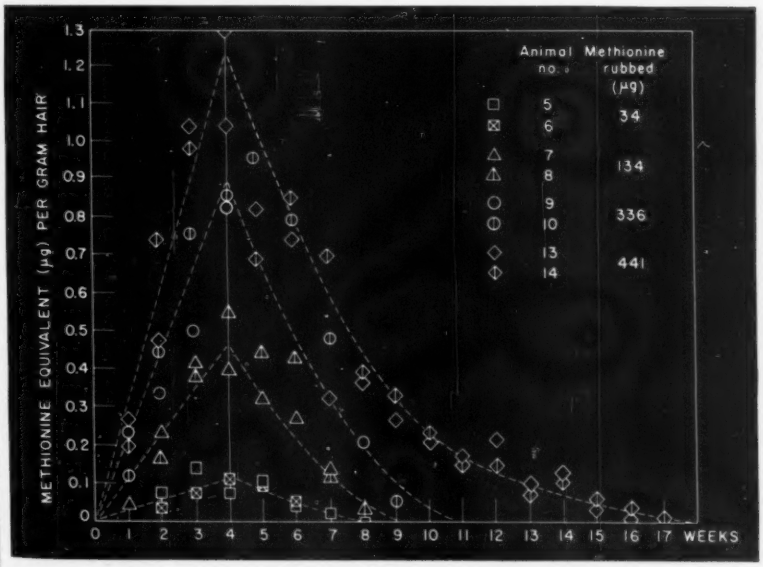
MORE

Esters of ISOSEBACIC® Acid Compare Well with Other Vinyl Plasticizers

Octyl esters of the new U.S.I. ISOSEBACIC acid have been evaluated against accepted vinyl plasticizers in a complete series of tests at the U.S.I. laboratories. The performance results have been coupled with current price information to yield comparisons which should be of interest to makers of vinyl plasticizers.

Here are the conclusions. Octyl isosebacates are less expensive than sebacates and are closely competitive in overall performance. They have an edge over azelates on cost and are about equal in performance. While comparing closely on cost with adipates, they are better on overall performance.

ISOSEBACIC acid is a new synthetic intermediate developed by U.S.I. — a mixture of 2-ethyl suberic, 2, 5-diethyl adipic and sebacic acids. It will soon be available commercially from a new U.S.I. plant at Tuscola, Ill.



Uptake of methionine (S^{35}) in hair of rubbed guinea pigs. (Edwards, L. J.: *Nature*, 173, 1042)

Nov. 15 ★ **U.S.I. CHEMICAL NEWS** ★ 1958

CONTINUED

Methionine

extensively by formulators of cosmetics, toiletries and topically applied medications. Creams and lotions to maintain skin tone, treat burns and sunburn, and hasten the healing of minor cuts, scratches and abrasions are among the possibilities. Incorporation into baby talcs, after-shave lotions and men's hair preparations is also indicated. The possibilities are many.

Test Procedures

Here's how the tests were made. Methionine labeled with a radioactive sulfur (S^{35}) tracer was applied in aqueous solution to a shaved area on the backs of the test guinea pigs by gentle rubbing. The same solution was also injected intramuscularly into a second group of guinea pigs, and fed orally to a third group. Hair from the treated animals was clipped at weekly intervals, washed, and its radioactivity determined. The per cent of absorption by these three methods of application were, respectively, 1%, 3-5%, and 2%, based upon the test results.

The animals subjected to topical application were treated four days a week for four weeks. Their hair showed a steady build-up of radioactivity during this time. When application was stopped, radioactivity declined steadily. The chart on the preceding page shows the curve.

New Surface Treatment for Polyethylene Makes It Receptive to Printing Ink

A new chemical treatment for giving the surface of polyethylene an affinity for printing inks is outlined in British Patent 772,803. Two types of chemical solutions are mentioned:

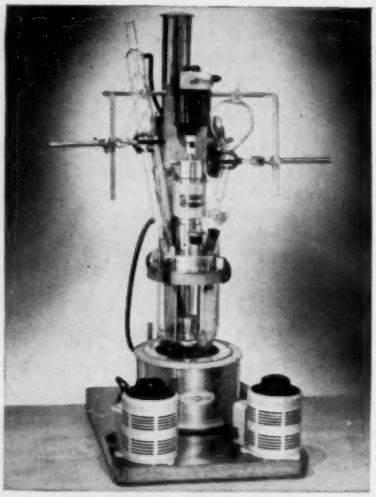
(1) A 4% aqueous solution of a permanganate containing 10-30% by weight of sulfuric acid. A brown permanganate stain results which can be removed with potassium bisulfite without affecting film's receptiveness to ink.

(2) A 30% aqueous solution of a chromate or dichromate containing not more than 30% by weight of sulfuric acid. Both chemical treatments are followed by washing and drying.

New High-Speed Stirrer For Dispersing Sodium

A new unit, designed to apply high-speed stirring to many types of small-scale chemical reactions, has been tested and found satisfactory for dispersing sodium. As part of a research program on preparation and uses of sodium in dispersed form, the U.S.I. laboratories have evaluated the new Chemtor Dispersion Reactor and have found that it compares favorably with other small-scale units suggested in the U.S.I. literature (see the 42-page U.S.I. brochure "Sodium Dispersions" for complete discussions of Cowles Dissolver, Premier Mill Dispersator, Waring Blendor).

The Chemtor Dispersion Reactor, like the others, can be used to increase the surface area of sodium — for faster reactions and higher yields — in Claisen condensations, Wurtz-type reactions, purifications, metallations, preparation of sodium alcholates, preparation of alkyl and aryl sodium, polymerizations and replacement of acidic hydrogen.



Chemtor high-speed dispersion reactor system.

TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing U.S.I.

Powdered replacement for liquid acids just introduced is blend of acid salts, activators, surfactants. Acid solutions prepared by dissolving in water. Suggested for activating metals before plating, and as pickling agent. **No. 1410**

Barium chloranilate reagent powder for sulfate determinations is now being marketed. Reduces working time to one half hour maximum, it is claimed. Suitable for analyses of water, petroleum products, many other materials. **No. 1411**

New gamma-sensitive scintillation detector is specially designed for medical diagnostic use of radioisotopes. Is said to be ideally suited for thyroid or kidney function studies, cardiac output determinations, 3-D body scanning. **No. 1412**

Feed industry outlook for next 50 years — covers expected advances in farm economics, biochemical developments, feed automation, liquid supplements, etc. in reprint form. **No. 1413**

New rauwolfia alkaloid raubasine is now available in commercial quantity. Product is also known as ajmalicine, delta-yohimbine and tetrahydroserpentine. **No. 1414**

High purity 2-butene and 1-butene concentrates are now commercially available. The 2-butene contains no isobutylen. , 0.5% max. 1-butylen, 1% max. butadiene, 96% min. 2-butene, balance n-butane. The 1-butene contains 5% max. isobutylene, 60% min. 1-butene, balance butanes. **No. 1415**

Disposable-paper temperature indicators for 100, 105, 110°F can now be obtained. Work by irreversible color change. Developed for measuring temperatures attained by heat-sensitive biologicals, etc. in storage and transit. **No. 1416**

Cholesterol's chemistry, biochemistry and pathology are detailed in a new, 542-page book which can now be purchased. Prepared by an international group of authors, book gives complete picture of present knowledge on compound. **No. 1417**

Small-capacity pump or meter designed to fit conventional laboratory stirring motor drives is now on market. Mounts on same ring stand as such motors. Said to handle small flows of Chemical liquids, slurries, pastes. **No. 1418**

Proceedings of Sixth International Conference on Spectroscopy (May 1956) have recently been published as a supplement to Spectrochimica Acta, 1957 and offered for sale. Includes papers on UV absorptiometry, IR spectroscopy, emission, spectrometry. **No. 1419**

PRODUCTS OF U.S.I.

Pharmaceutical Products: DL-Methionine, N-Acetyl-DL-Methionine, Urethan USP, Riboflavin USP, Intermediates.

Alcohols: Ethyl (pure and all denatured formulas); Proprietary Denatured Alcohol Solvents SOLOX®, FILMEX®, ANSOL® M, ANSOL PR.

Organic Solvents and Intermediates: Normal Butyl Alcohol, Amyl Alcohol, Fusel Oil, Ethyl Acetate, Normal Butyl Acetate, Diethyl Carbonate, DIATOL®, Diethyl Oxalate, Ethyl Ether, Acetone, Acetoacetanilide, Acetoacet-Ortho-Chloranilide, Acetoacet-Ortho-Toluidide, Ethyl Acetoacetate, Ethyl Benzoylacetate, Ethyl Chloroformate, Ethylene, Ethyl Sodium Oxalacetate, Sodium Ethylate, ISOSEBACIC® Acid, Sebacic Acid, Urethan U.S.P. (Ethyl Carbamate), Riboflavin U.S.P., Pelargonic Acid, 2-Ethyl Heptanoic Acid.

Heavy Chemicals: Anhydrous Ammonia, Ammonium Nitrate, Nitric Acid, Nitrogen Fertilizer Solutions, Phosphatic Fertilizer Solution, Sulfuric Acid, Caustic Soda, Chlorine, Metallic Sodium, Sodium Peroxide, Sodium Sulfite, Sodium Sulfate.

PETROTHENE® Polyethylene Resins

Animal Feed Products: Antibiotic Feed Supplements, BHT Products (Antioxidant), Calcium Pantothenate, Choline Chloride, CURBAY B-G®, Special Liquid CURBAY, VACATONE®, Menadione (Vitamin K_3), DL-Methionine, MOREA® Premix, Niacin USP, Riboflavin Products, Special Mixes, U.S.I. Permadry, Vitamin B_{12} Feed Supplements, Vitamin D_3, Vitamin E Products, Vitamin E and BHT Products.

U.S.I. INDUSTRIAL CHEMICALS CO.
Division of National Distillers and Chemical Corporation
99 Park Avenue, New York 16, N. Y.

U.S.I. SALES OFFICES

Atlanta • Baltimore • Boston • Buffalo • Chicago • Cincinnati
Cleveland • Dallas • Detroit • Houston • Indianapolis • Kansas City, Mo.
Los Angeles • Louisville • Minneapolis • Nashville • New Orleans
New York • Philadelphia • Pittsburgh • Portland, Ore. • St. Louis
Salt Lake City • San Francisco • Seattle

OPINION

the total latex paint market accounted for by each of the three major types of vehicles have changed considerably since '56, particularly in the first eight months of this year.

Our figures indicate that at the present time, the total latex paint market is divided approximately as follows:

Acrylics	15-19%
Vinyls	25-31%
Styrene butadiene	60-50%

It will undoubtedly be interesting to compare these figures with those that other latex suppliers may be sending in.

H. J. ZAHRNDT
Manager
Resin Division
National Starch Products Inc.
Plainfield, N. J.

MEETINGS

Society of the Plastics Industry, eighth national conference and exposition; theme: plastics for profits; Morrison Hotel and International Amphitheatre, Chicago, Nov. 17-21.

National Conference on Air Pollution, sponsored by the U.S. Dept. of Health, Education & Welfare, Sheraton-Park Hotel, Washington, D.C., Nov. 18-20.

Commercial Chemical Development Assn., joint meeting with **National Agricultural Chemicals Assn.,** Lord Baltimore Hotel, Baltimore, Md., Nov. 20-21.

Manufacturing Chemists' Assn., semi-annual meeting, Statler Hotel, New York, Nov. 25.

American Rocket Society, annual meeting, Statler Hotel, New York, Dec. 1-5.

American Institute of Chemical Engineers, annual meeting, Netherland Plaza Hotel, Cincinnati, Dec. 7-10.

American Nuclear Society, winter meeting, Sheraton-Cadillac Hotel, Detroit, Dec. 8-10.

Chemical Specialties Manufacturers Assn., annual meeting, Commodore Hotel, New York, Dec. 9-11.

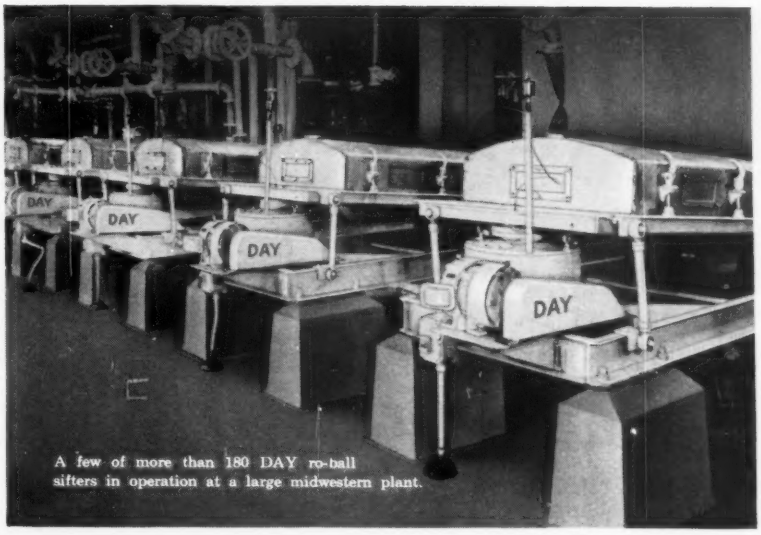
American Society of Agricultural Engineers, winter meeting, Edgewater Beach Hotel, Chicago, Dec. 15-17.

American Assn. for the Advancement of Science, annual meeting, Sheraton-Park Hotel, Washington, D.C., Dec. 26-31.

Society of Plastics Engineers, 15th annual technical conference, Commodore Hotel, New York, Jan. 27-30.

American Institute of Mining, Metallurgical and Petroleum Engineers, annual meeting, San Francisco, Feb. 15-19.

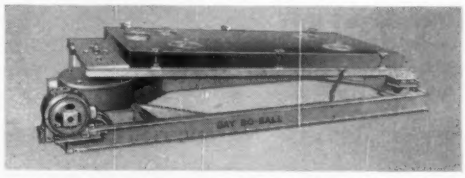
SIFT finer-faster-cleaner with DAY ro-balls

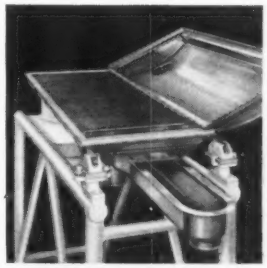


A few of more than 180 DAY ro-ball sifters in operation at a large midwestern plant.

Today thousands of products wet or dry, from flour to wood chips, are sifted through efficient, low-cost, high-production DAY ro-ball sifters. Superbly engineered, built for trouble-free operation under the severest service conditions, they insure longer life with lower maintenance costs.

The exclusive super active ball cleaning device provides rebound points in each ball compartment, assuring fast, thorough sifting of your product. Gyrating action brings material into constant contact with every square inch of screen surface. A stabilizer maintains screen in horizontal position and insures smooth operation.


DAY standard ro-ball, available in six sizes, single or multiple screens. Single screen models in stock.


Stainless steel units available to meet food and dairy sanitary codes.

Many models are available so it is easy to choose one which will exactly suit your requirements. They can be used separately or in combination with DAY mixers or blenders to save product handling. A completely equipped lab is available for testing your product.

Write for new DAY ro-ball Bulletin.

The J. H. DAY Co.
Division of The Cleveland Automatic Machine Co.
SERVING THE PROCESS INDUSTRY SINCE 1887
4928 Beech Street, Cincinnati 12, Ohio

NEWS BRIEFS *that plant profit seeds*

Alert chemical processors are watching for two kinds of news these days. News about new chemical developments and news about new uses for established chemicals. They can often spot idea seeds that grow into profit blooms when nourished by decisive, intelligent action. These two pages present, in concise form, news about several Dow chemicals . . . worthwhile reading for C.P.I. men on the lookout for ideas.

You may wish to check certain items in this advertisement and forward to those concerned in your company.

ROUTE TO:

_____

_____

_____

_____

DOWICIDE: LIFE PRESERVER FOR PRODUCTS AND PROFITS

An axiom of modern marketing is: "Make it better, sell it better!" Certainly one of the world's best sales stimulators is product improvement. But once you've improved the product, how do you keep it that way?

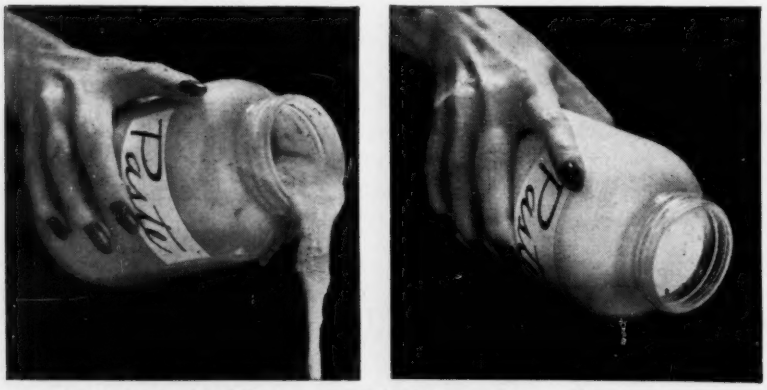
That's where Dowicide® comes in. The manufacturer of a new liquid starch faced up to the "keeping" problem. His new synthetic starch lasts so long in shirts, linens and the like (up to 8 washings) that a bottleful would last much longer, too. This *could* mean trouble . . . decomposition caused by bacteria and fungi. He brought the problem to Midland, where Dow researchers recommended the addition of Dowicide A to his formula. Happy result: the attack by destructive bacteria and fungi was prevented by the chemical curtain of Dowicide A.

14 different Dowicide preservatives provide product quality "insurance" against the ravages of time, molds, bacteria. They keep shoe polishes polishing, floor waxes waxing, and baler twine tough and tight. One of the Dowicide preservatives protects apples, pears and citrus fruits on the journey from tree to table. Losses from decay due to bacteria are cut by 65% or more, even on transoceanic shipments!

A manufacturer of fine carpeting found that twisted cellulose twine makes an ideal carpet backing, but it must be protected from attack by mildew. A Dowicide preservative does the job well for just a few cents per yard. Dowicide preservatives also guard quality in textiles, ceramics, leather, paper, paint, agricultural and building products.

Performance tests with library paste graphically illustrate the value of Dowicide preservatives. Two samples (see photo) were inoculated with microorganisms and exposed for one week at a temperature of 86°F. The untreated sample showed mold growth and developed an objectionable odor. The sample treated with a Dowicide preservative resisted attack, retained its consistency and other characteristics.

Most manufacturers and processors who have had experience with Dowi-



Untreated sample of library paste (left) shows spoilage resulting from mold attack. Sample at right, treated with Dowicide, remains clean and useful.

DOW CHEMICALS *basic to the*

Alkylene Oxides, Glycols • Industrial Preservatives • Polyalkylene Glycols • Glycol Ethers • Alkalies • Phenolic Compounds • Brominated and Chlorinated Aliphatic Compounds • Inorganic Acids • Halogens • Organic Acids and

YOU CAN DEPEND

cide make it a point to check with Dow whenever they're making a change in a product or working on a new one. That's the best time to find out which Dowicide preservative will best do the product protection job required. If you'd like more information about Dowicide preservatives, write to the address below for literature and data.

Gum with no "gel out"

News about Methocel® is making quite a stir in the C.P.I. these days. This non-ionic, water-soluble gum has more applications in chemical processing than a cat has lives.

Wide line widened. Three new Methocel types, 60 HG, 70 HG and 90 HG have recently joined the ranks to supplement the already extensive Methocel family. Together, they give the chemist an unparalleled selection of thickeners, emulsifiers, stabilizers, binders and suspension agents.

Methocel 90 HG is available in a wide range of viscosities including a super-high 15000 cps material for exceptionally high thickening efficiency. The 90 HG type, developed for its non-gelling characteristics, is useful where elevated processing temperatures are encountered . . . polymer processing for example. Solutions of Methocel 90 HG retain their functional properties up to 194°F. At this temperature they may lose some clarity which is restored on cooling.

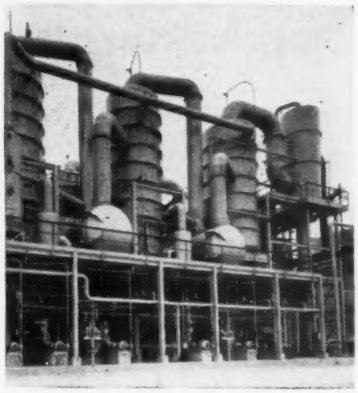
Fact-filled book. The new formulations and viscosities, as well as simplified techniques to put Methocel into solution, are described in the recently published Methocel manual. This colorful 60-page reference book contains a large section on applications, 13 useful charts and a complete bibliography.

★ ★ ★ ★

New ideas anyone? If you'd like to know more about the Dow chemicals discussed on these pages, or those listed in the box below, write THE DOW CHEMICAL COMPANY, Midland, Michigan, Chemical Sales Department 753B-1.

GOOD SIGN:

Caustic on the march



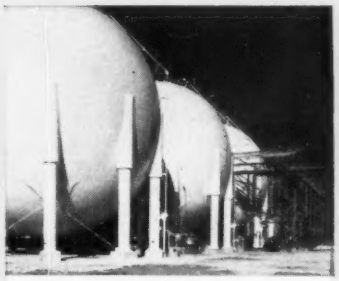
New facilities supplement Dow nationwide caustic soda distribution network.

The national consumption of caustic soda—traditionally a reliable economic barometer—is being watched more closely now than ever before. This holds particularly true in the chemical process industries where a large percentage of the total caustic tonnage is used. An encouraging side light is the new activity at Dow these days . . . activity that has a bearing on future caustic indices.

Add Plaquemine. Dow is forging new links in its far reaching chain of distribution centers for caustic soda. A new producing plant at Plaquemine, Louisiana, is scheduled to go on stream soon. Other new terminal points have been added, bringing the total to eight. Twelve Dow producing points and shipping terminals are strategically located to give C.P.I. customers throughout the nation the best possible break on their freight dollar.

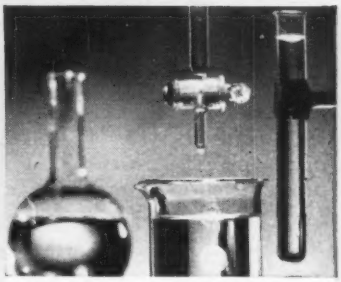
FAST FACTS

about 4 more Dow chemicals



AMMONIA

Huge inventories maintained by Dow assure abundant supply . . . several shipping terminals guarantee prompt delivery.



DOWANOL®

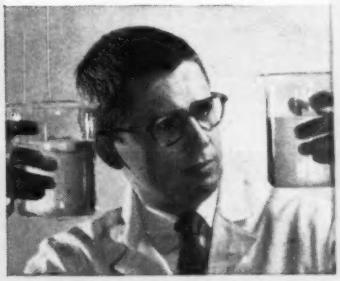
Dow offers only line including both ethylene and propylene glycol ethers . . . the right solvent for many applications in chemical processing.

ETHANOLAMINES

Crystal clear and pure . . . improve cosmetics, shampoos, waxes and liquid buffing compounds. Eliminate problems in gas sweetening and dehydration.

ETHYLENE AND PROPYLENE OXIDE

Upgrade products with these two versatile Dow chemicals . . . receive them from either of two shipping points, whichever is most convenient.

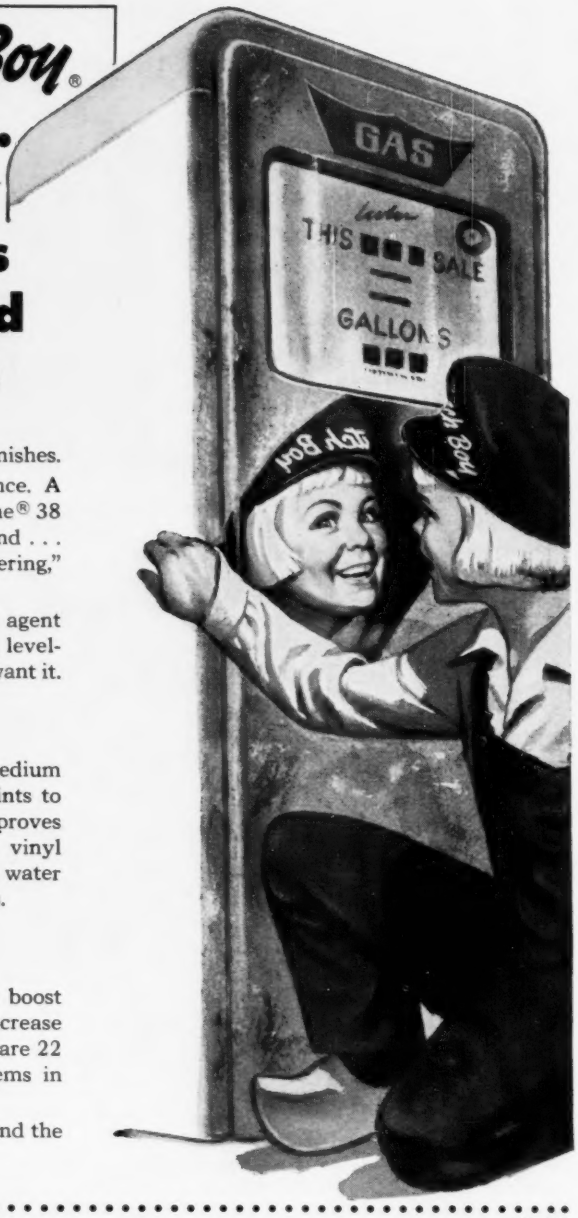


chemical processing industries

Esters • Inorganic Chlorides • Bromides and Bromates • Nitrogen Compounds • Amino Acids • Glycerine • Salicylates • Phenyl Phosphates • Heat-Transfer Media

DOW

Now...from Dutch Boy® gellant research...



longer lasting gloss for architectural and industrial enamels

There are some bright ideas in back of today's metal finishes.

New enamels with longer lasting gloss, for instance. A recent product of "Dutch Boy" gellant research, Bentone® 38 gelling agent, gives enamels much longer gloss life. And . . . gloss uniformity is insured by the elimination of "cratering," "orange peel," and wrinkling during drying.

In enamels and other finishes, Bentone 38 gelling agent efficiently produces thixotropic action . . . controls sag, leveling, film thickness...structures dry film the way users want it.

"Dutch Boy" gellant research aids the whole paint industry

Bentone 34 and 38 gelling agents benefit low to medium polarity solvent systems — from house and traffic paints to putty and printing inks. Bentone 18-C gelling agent improves high polarity systems — lacquers, resin coatings, vinyl dispersions. Ben-a-Gel® gelling agent does as much for water based systems — latex paints, emulsions, and adhesives.

In other industries, "Dutch Boy" research benefits other products

In cosmetics, "Dutch Boy" thixotropic gelling agents boost slip, increase package stability. In greases, they increase heavy duty performance. For the vinyl industry, there are 22 "Dutch Boy" stabilizers — each a specific for problems in manufacture or service.

For details on the chemicals mentioned, fill in and send the coupon. For assistance in their application, write.

NATIONAL LEAD COMPANY, 111 Broadway, New York 6, N. Y. KC-1192

In Canada: CANADIAN TITANIUM PIGMENTS LIMITED, 630 Dorchester Street, West • Montreal

Gentlemen: Please send literature checked below:

- **Folders on "Dutch Boy" Gelling Agents:**
  - ☐ "Dutch Boy" BENTONES (gel organic liquids)
  - ☐ "Dutch Boy" BEN-A-GEL (gels aqueous compounds)
- **Folders on "Dutch Boy" Stabilizers:**
  - ☐ (Specify type of vinyl products you make)

Name_____ Title_____

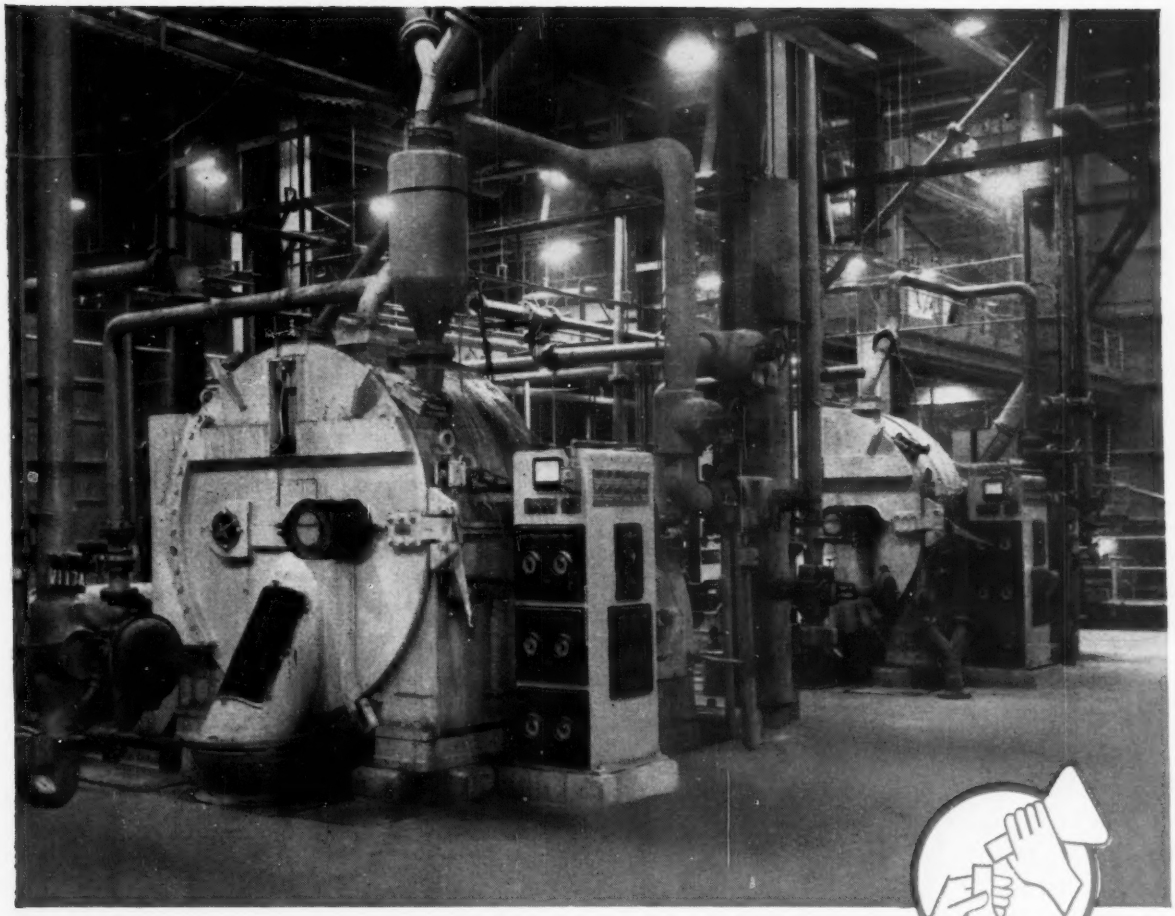
Firm_____

Address_____

City_____ State_____

Buy Dutch Boy® CHEMICALS

...and get the plus of a name you know...for quality



B-P CENTRIFUGALS used by ELECTRO METALLURGICAL COMPANY in Titanium Production

Although a metal, titanium is produced by a chemical process. Metal in the form of ore is converted to titanium tetrachloride, which is purified and then reduced to metallic sponge by sodium. In order to separate the brine from the titanium sponge, Electro Metallurgical Company, Division of Union Carbide Corporation, New York, utilizes Baker Perkins 66" diameter type HS Universal Centrifugals. It's a tough application, but the B-P Type HS has proven itself efficient and dependable. These same machines are adaptable to a wide range of filterable fine solid-liquid slurries. Baker Perkins also manufactures type S Continuous Centrifugals which are used extensively for the separation of filterable coarse solid-liquid slurries.

Since centrifugation is such an important process in the chemical industry, and, since there are so many types of slurries that must be separated, Baker Perkins engineers give special design consideration to each specific problem. No matter what factors are involved in each application, our engineers can make recommendations on the proper centrifugal machinery.

Send for your copy of Catalog CE-58 for complete information on size, type and capacities of Baker Perkins "Ter Meer" Centrifugals.

BAKER PERKINS INC. CHEMICAL MACHINERY DIVISION SAGINAW, MICHIGAN

361

100% FINANCING

for your new plant

...and at low, low interest rates!

Communities in our service area are prepared to roll out the red carpet for desirable industry to the extent of *totally financing* construction of the plant.

It's a unique plan for lease/purchasing that combines funds from non-profit community development corporations and the Pennsylvania Industrial Development Authority with first mortgages through private lending institutions.

West Penn Power is prepared to obtain information for you, in strict anonymity, about communities participating in this plan and, in addition, provide specific information on many other plant location factors to assist in your evaluation of WESTern PENNsylvania as a desirable location.

WEST PENN POWER

an operating unit of the WEST PENN ELECTRIC SYSTEM

Hello...

I'm Charlie Fife . . . of course every plant must have 100% financing of some kind; but, I'm sure you'll agree that this unique plan can solve a lot of problems, providing others, equally important, can be worked out as well.

Labor supply, for example. We have communities with excellent labor pools, both male and female, on which new industry can draw. But are the needed skills available at the right wage scale? Facts, figures and skill surveys from our files can tell you.

Because these problems are complex, West Penn Power maintains a staff of plant location specialists to assist in your evaluations. There is no charge for this professional service, of course . . . and you may be sure your confidence will be respected. Write today.

CHARLES M. FIFE, *Manager*
Area Development Department

WEST PENN POWER, Area Development Department, Cabin Hill, Greensburg, Pennsylvania CW-2

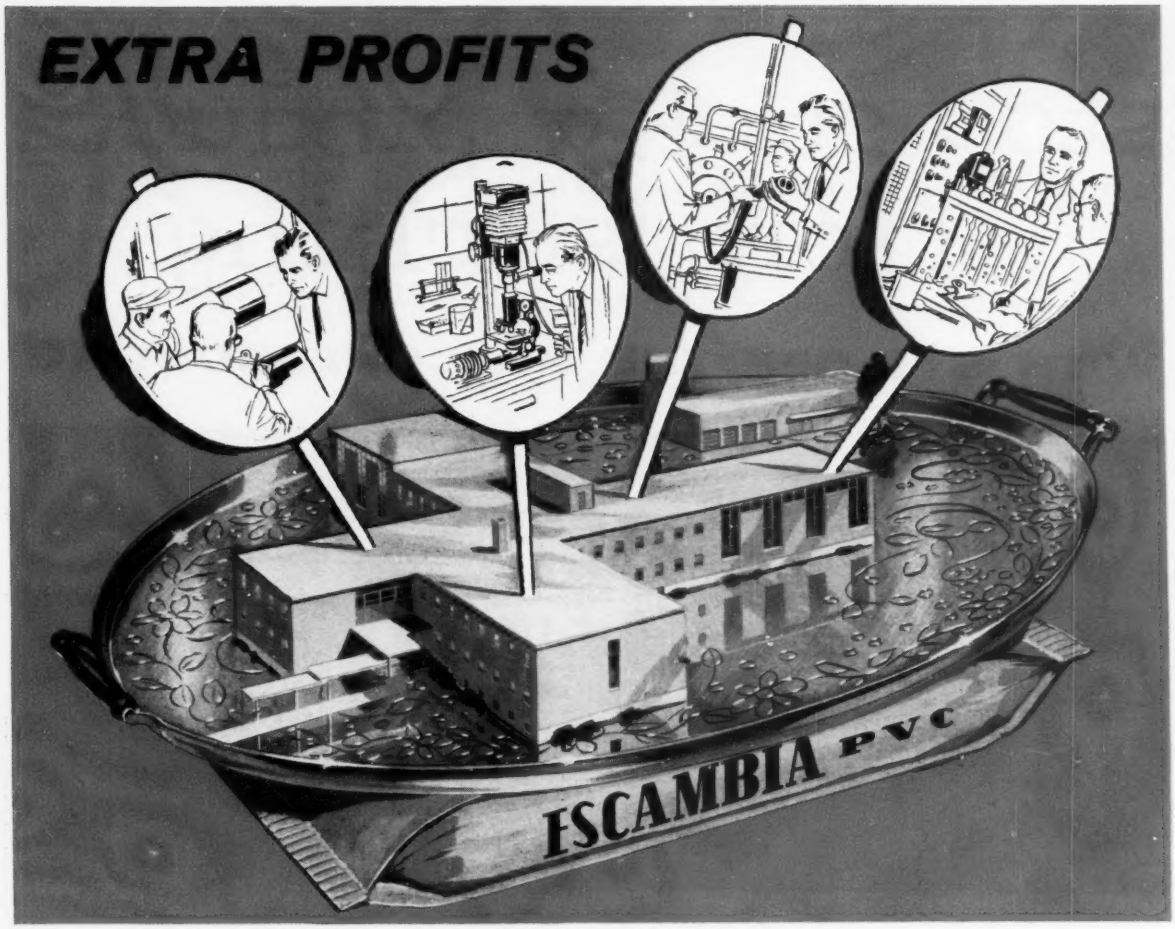
Yes, I'm interested in WESTern PENNsylvania:

☐ Please contact me in strict confidence. ☐ Please send booklet, "Plant Location Services."

Name_____ Title_____

Company_____ Street_____

City_____ Zone_____ State_____



on a Silver Platter....

✓ TECHNICAL SERVICE
✓ PRODUCT DEVELOPMENT
✓ RESEARCH

Whatever you want—it's yours at the new Escambia Research Center. Your present product or one you have "in the back of your mind" will get prompt and confidential attention at this completely staffed and fully equipped facility. Bring your plans and problems to Escambia—there's no obligation.

Help yourself to EXTRA PROFITS with Escambia PVC. You get the benefits of these outstanding resins that save you time, trouble and money. In addition, you get the prompt service of Escambia's new, modern Research Center to help you make these advantages pay off in *your* operation.

ESCAMBIA PVC PEARLS—
The unique polymer with exceptional dry blending characteristics, even at high plasticizer levels. No fines to cause "dust" or clog the hopper.

ESCAMBIA ELECTRICAL GRADE PVC—
Four molecular weights to fit your product requirements and increase production speeds. Easy-working and free-flowing dry blends help you operate at top efficiency.

ESCAMBIA GENERAL PURPOSE PVC RESINS—
Uniform resins with unusual benefits of low gel count, outstanding heat stability and trouble-free processing.

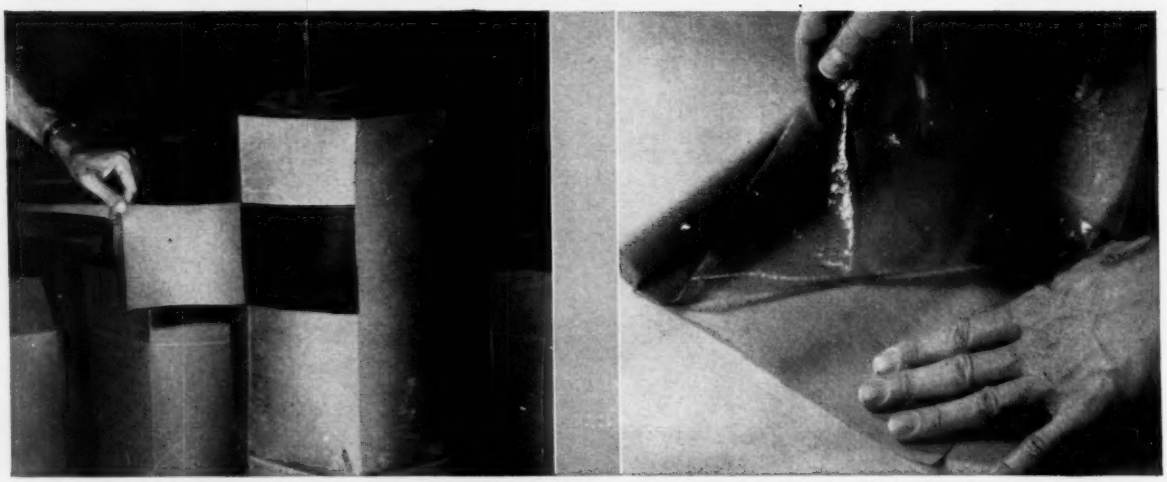
ESCAMBIA CHEMICAL CORPORATION

261 MADISON AVENUE • NEW YORK 16, N. Y.
NEW YORK TELEPHONE • OXFORD 7-4315

MANUFACTURERS OF: ESCAMBIA P V C PEARLS*/ ESCAMBIA PVC RESINS/ BAY-SOL* (NITROGEN SOLUTIONS) / AMMO-NITE* (PRILLED AMMONIUM NITRATE FERTILIZER)/ANHYDROUS AMMONIA/AMMONIA / NITRIC ACID/METHANOL
*TRADEMARKS OF ESCAMBIA CHEMICAL CORPORATION

stop sticky products from sticking

WITH SYL-OFF, THE SILICONE COATING



Syl-off coated paper pulls cleanly from sticky asphalt, . . . and from an adhesive film that has no backing.

RELEASES STICKY PRODUCTS QUICKLY, CLEANLY . . . SAVES MONEY

Virtually nothing sticks to this completely new surface coating for package liners, wrappings, and interleaving sheets. SYL-OFF†, the Dow Corning silicone coating, gives quick and complete release from even the gummiest products . . . adhesives, asphalt, candy, glue, unvulcanized rubber . . . nothing is wasted. SYL-OFF won't affect appearance or physical strength of package . . . can't contaminate products . . . lasts as long as the paper stock itself. Any way you look at it, SYL-OFF is a money saver: if you package, SYL-OFF is comparable in cost to conventional nonadhesive coatings and weighs less—cuts freight charges; if you receive tacky materials, you save money in reduced waste, scrap and labor.

† T.M. DOW CORNING CORPORATION

YOUR BEST SOURCE FOR ALL SILICONES . . . DOW CORNING

Adhesives, defoamers, lubricants, cosmetic and polish additives, electrical varnishes, paint resins, intermediates, Silastic® (silicone rubber), Sight Savers®, paper coatings, laminating resins, water repellents, and release agents.

These and many other Dow Corning Silicones are cutting costs for industry . . . and are helping to make good products better. For more information, call the branch office nearest you or write direct to Dow Corning, Dept. 3311

When you consider the entire cost, silicones cost less.

first in silicones

Dow Corning CORPORATION
MIDLAND, MICHIGAN

ATLANTA BOSTON CHICAGO CLEVELAND DALLAS LOS ANGELES NEW YORK WASHINGTON, D. C.

Business
Newsletter

CHEMICAL WEEK
November 15, 1958

Late earnings reports reveal some weak spots along with third-quarter gains (*see also p. 35*).

Minnesota Mining & Mfg. upped third-period sales to $95.1 million, a 2.7% gain over '57's September quarter. Earnings hit $12 million, up 22.4%.

But Olin Mathieson's nine-month earnings nosedived to $11.8 million, off 59%. Sales slumped to $438.4 million vs. $451 million last year.

Among the booming pharmaceuticals:

Sterling Drug boosted third-period sales to $50.7 million, compared with $49.4 million. Profits of $5.1 million were up slightly from '57.

American Home Products' third-quarter sales hit a record $95.1 million, up 7%. Earnings rose to 10.3% to $10.7 million. And Bristol-Myers earnings were ahead 12.5% for the quarter.

Significant, though disappointing, are the off-season earnings of various producers of fertilizers and other agricultural chemicals.

International Minerals & Chemical showed a net loss of $38,000 in the quarter ended Sept. 30, compared to a profit of $754,000 in the same period of '57. Sales, however, were $20.2 million, down only 2%.

American Agricultural Chemical posted only $5,050 in net earnings for the September quarter, compared to $72,960 one year earlier.

Spencer Chemical—which has substantially diversified into plastics and other nonfarm lines—had previously reported a 12% increase in sales but a 14% drop in earnings for the September quarter.

The Du Pont-General Motors antitrust suit may be wrapped up sooner than has been expected. Late last week, U.S. District Judge Walter LaBuy turned down a request by the Justice Dept. for a temporary restraining order against Du Pont and GM, remarking that "the end of this protracted litigation is in sight" (*CW, Oct. 11, p. 30*).

The government had asked for a quick injunction to keep Du Pont from acquiring additional GM stock, from voting the GM shares it has now, and from having officers and directors in common with GM. Judge LaBuy noted that a full-dress hearing is scheduled to start Jan. 26, and commented that it would be a mistake to determine the issues "piecemeal."

•

Prospects of a stricter tax law on cooperatives were blacked out by last week's Democratic election victories, which swept into office strong

co-op supporters (*Washington Newsletter, p. 42*). While the new Congress won't likely grant the co-op any new benefits, it won't take any away, either.

•

One legal battle settled, two more begun: that's the CPI's score for this week in litigation.

• The Justice Dept.'s year-old antitrust suit against Syntex Corp. and its affiliates (*CW, Nov. 16, '57, p. 23*) was settled when the companies agreed to a consent judgment halting alleged restraint of trade in importation, sale and distribution of barbasco and intermediates for making steroid hormone products. Syntex agreed to grant nonexclusive licenses under a group of Mexican and U.S. patents relating to the use of barbasco root. It does not have to grant licenses for specialty products developed through its own research. And Syntex can continue consulting with the Mexican government to promote a "conservation program" for barbasco root.

• A $33-million antitrust suit was filed last week against Du Pont and three other companies by a small producer of automotive chemicals, Bar's Leak Supply, Inc. (Holly, Mich.), charging they conspired to "maliciously disparage" its leakproofing and antirust products. Frederick Barton, owner of the firm, asserts that Du Pont, in two pamphlets describing tests of competing products made by Du Pont, Bar's Leak Supply and two other producers, states that "soluble oil" (emulsified oil in water) was harmful to engines. Soluble oil is an ingredient of the Bar's Leak Supply product, but not of Du Pont's. Replies Du Pont: The reports "did not name Bar's or any other competitive product. . . . We can and will defend every statement made in them."

• American Home Products (New York) brought suit against The Mentholatum Co. (Buffalo, N.Y.) last week. The charge: infringement of AHP's Heet trademark on an analgesic liniment. The Mentholatum product has been marketed under the name Deep Heat. From Mentholatum executives: "No comment."

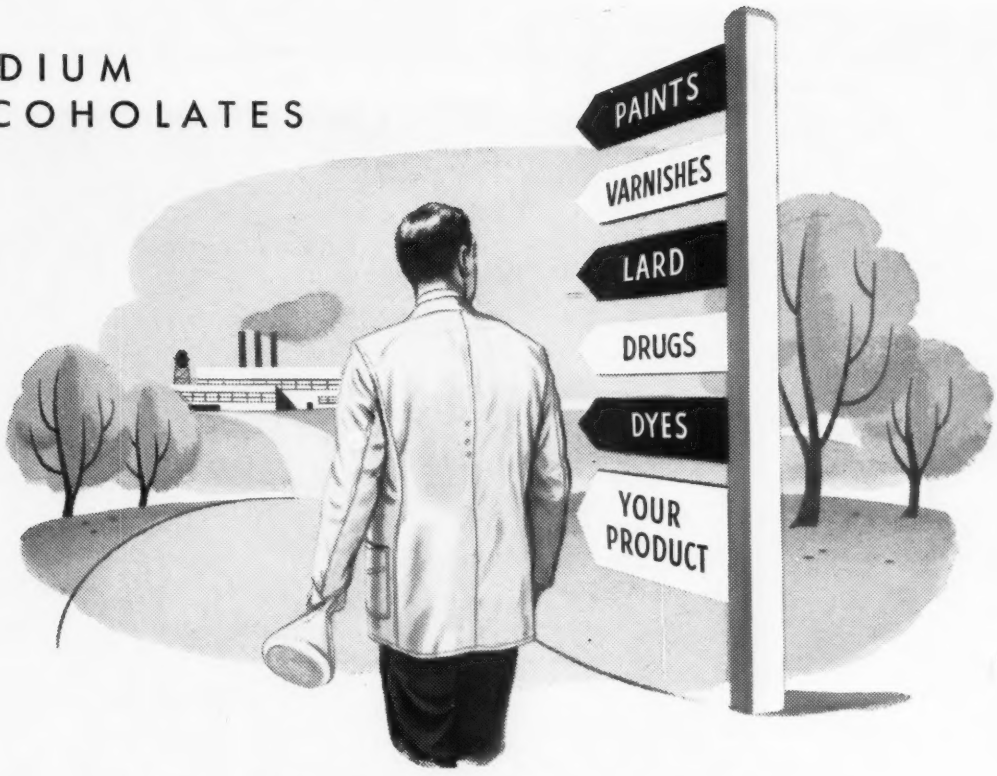
•

A chemical management man and a chemical union man gained high offices in last week's elections.

In Arizona, the new governor-elect is Republican Paul Fannin, processor-turned-politician. Fannin owns and leases fertilizer and butane plants to California Spray Chemical Co. and Suburban Gas Co., and is associated with a development company which just completed a study of clay deposits for tile producers.

And in Minnesota, International Representative Joseph Karth of the Oil, Chemical & Atomic Workers was voted into Congress on the Democratic ticket. Karth has been serving in the Minnesota legislature, specializing in tax matters. A former machine operator in Minnesota Mining & Mfg.'s St. Paul plant, Karth helped to organize his fellow workers into the old Gas, Coke & Chemical Workers Union back in 1946, has been an international representative since '49. While in Congress, he'll be on leave from his OCAW post.

SODIUM ALCOHOLATES



you're on the right road with sodium...

You can make many versatile and high quality alcoholates from metallic sodium and alcohols.

These chemical stepping stones—sodium methylate, ethylate, isopropylate and long-chain alcoholates—perform many useful industrial functions. They speed the drying of vegetable oils in paints and varnishes. They improve the properties and consumer appeal of fats. They're used in making sulfa drugs, vitamins, barbiturates, dyes and as catalysts.

Our Fact Sheet on Alcoholates may suggest a way *you* can improve *your* particular product or process with these useful intermediates. If you prefer, one of our experienced Chemical Engineers will be glad to call. The coupon below is for your convenience.

ETHYL CORPORATION
Chemicals for industry
100 PARK AVENUE, NEW YORK 17, N. Y. • CHICAGO • TULSA • LOS ANGELES

ETHYL® SODIUM METALLIC —ETHYL— CORPORATION

ETHYL CORPORATION
100 Park Avenue, New York 17, N. Y.

☐ Please send literature on Sodium Alcoholates

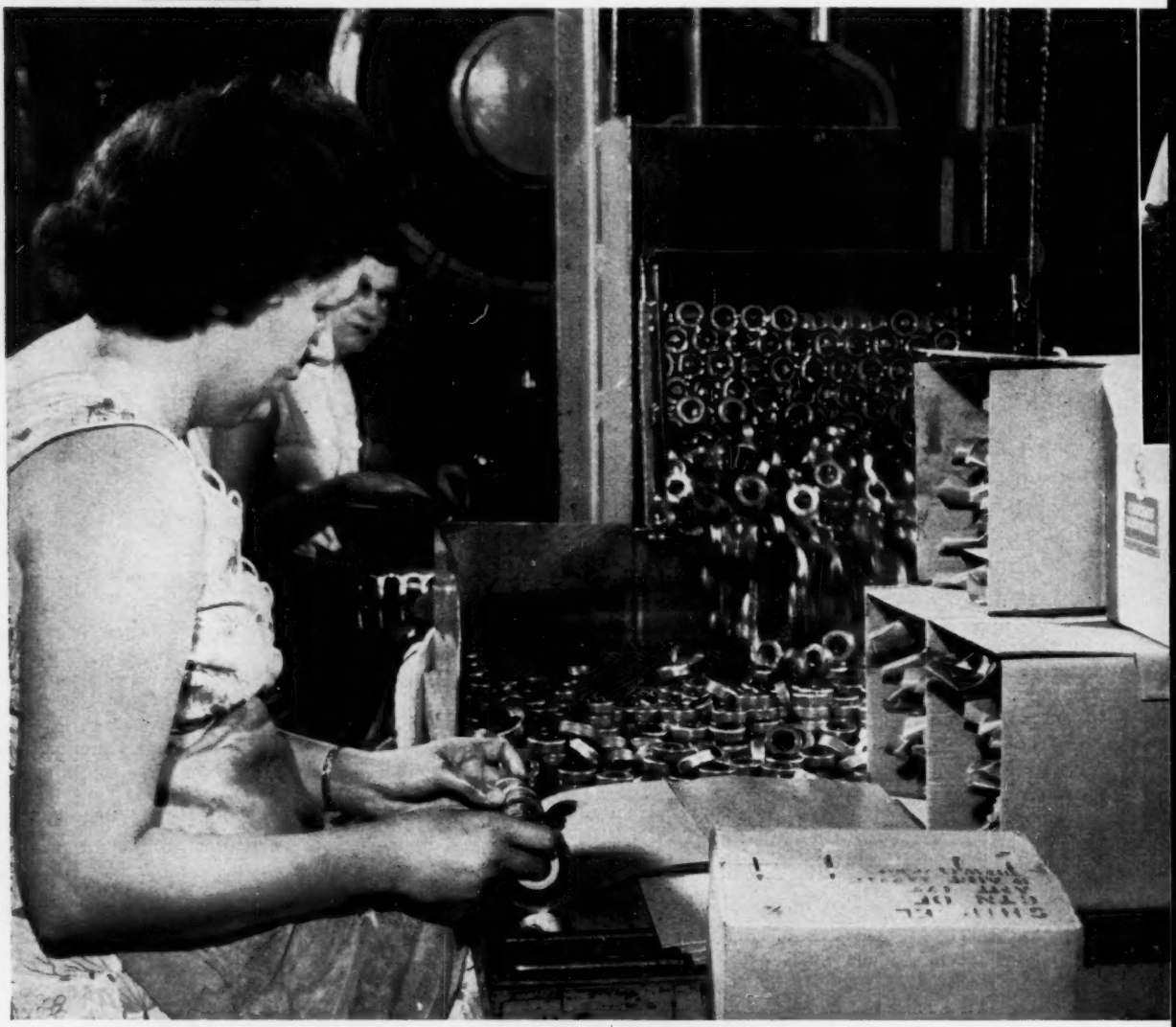
☐ Please have Engineer call

NAME_____
FIRM_____
ADDRESS_____
CITY_____ STATE_____

CW 11-15-58

3M COMPANY CHEMICALS

3M Chemicals opening new worlds of use for containerboard, electronic equipment, stamped metal, epoxies.



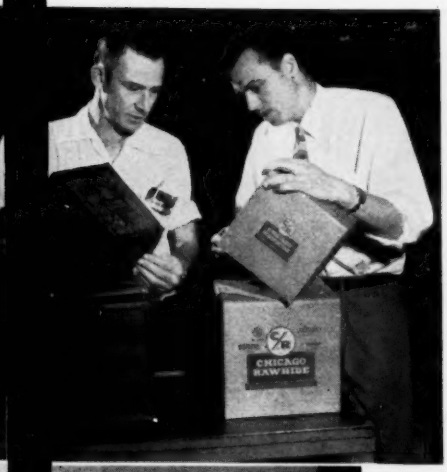
"SCOTCHGARD" *Paper Size keeps corrugated boxes clean and dry. In inset above, oil from machine parts soaks through untreated box, left. These same oily parts can't hurt box on right.*

NEW PAPER SIZE STOPS OIL PENETRATION

Now! No more stained, unsightly surfaces on corrugated containers that hold oily or greasy machine parts. No more box deterioration during shipping and storage. No more oil stains left on floors and shelves. "SCOTCHGARD" Brand Paper Size—a development of 3M Chemical Research—coats each fiber of paper, seals it from oil and grease absorption. Doesn't change container's strength, porosity, flexibility, color or appearance. Lasts far longer than ordinary wax or film coatings.

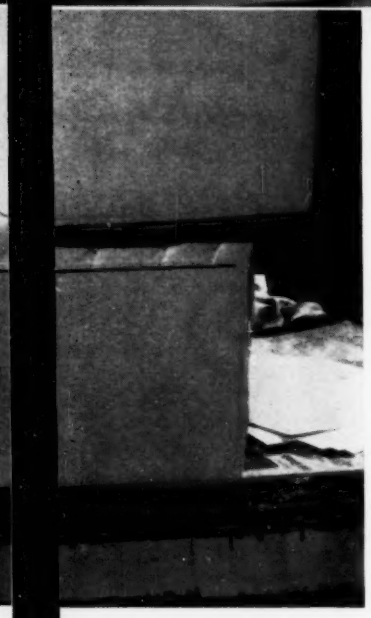
Chicago Rawhide Manufacturing Company reports great cost savings since using "SCOTCHGARD" Paper Size on shipping containers manufactured by Container Corporation of America. Not only easier, cleaner handling—but speedier production, too.

Protecting corrugated containers is just one example of how Minnesota Mining and Manufacturing Company Chemical Research helps modern industry. The other products shown here are representative of 3M Chemical Research effort in widely different fields.

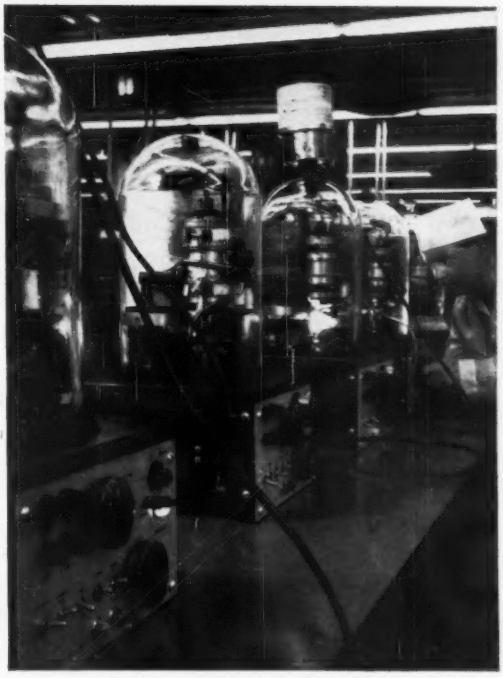


95% **COST-CUTTER.** Instead of using a steel die to make this shell dish prototype, Spartan Corporation used 3M Brand Tooling Compound 112. As a result, the die took only 5 hours to make—instead of 200 hours. It cost $12 instead of $60. And its combined labor-and-material cost was $27 instead of $660—a more than 95% saving! Tooling Compound 112 with its unique two-part system eliminates mixing and weighing—performs like steel dies for short runs in the thousands.

FREE-FLOWING FLEXIBILIZER. You can actually see the low viscosity of Cardolite® NC-513 when you pour it! This extreme fluidity lets you flow flexibilized epoxies around the most complex shapes—without weakening resin systems by adding solvents. And the same fluidity helps cut costs by permitting more filler in the resin system.



SHOCK ABSORBER. Only KEL-F® Trifluorochloroethylene Polymers in liquid form have the desired density and viscosity to protect and stabilize these Minneapolis-Honeywell aircraft gyroscopes. The gyros must be highly sensitive as well as rugged. KEL-F fluid floats the gimbals within the gyro thus producing shock resistance and reducing friction level.



OF CONTAINERBOARD

If any or all are of practical interest, write for more information: 3M, Dept. WE-118, St. Paul 6, Minnesota.

CHEMICAL DIVISION

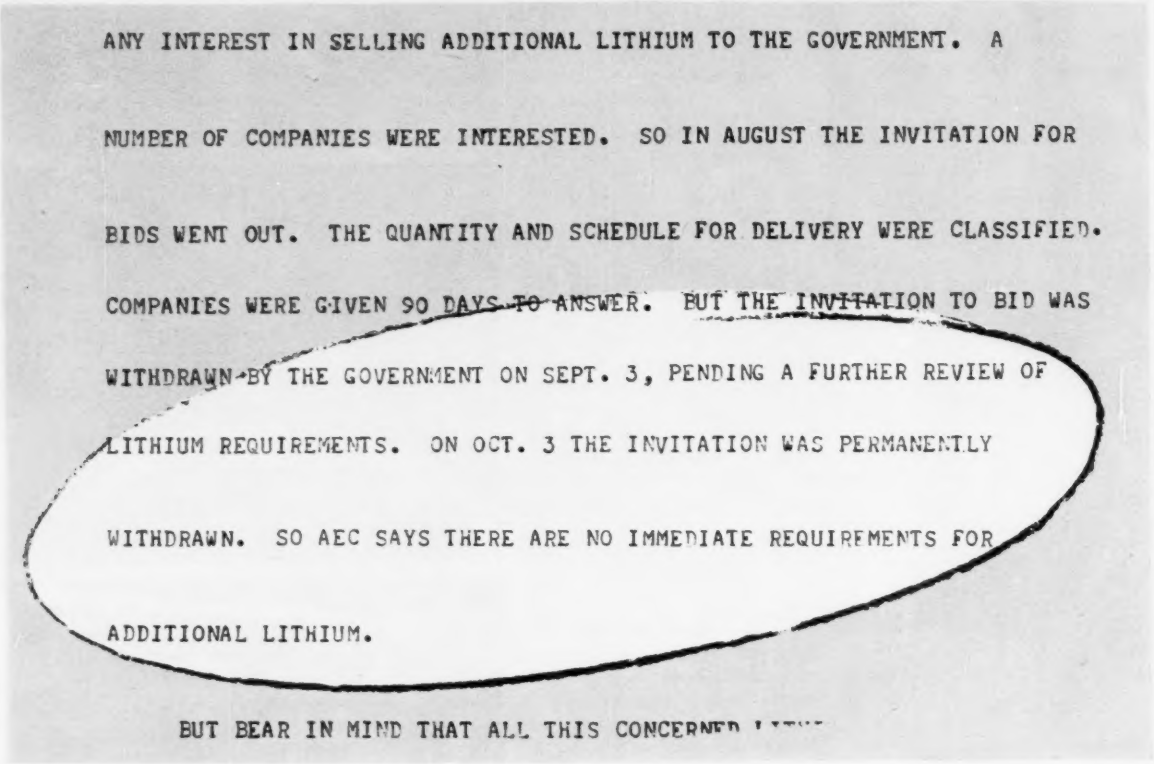
MINNESOTA MINING AND MANUFACTURING COMPANY

. . . WHERE RESEARCH IS THE KEY TO TOMORROW

3M COMPANY

Chemical Week

DOOM OF LITHIUM STOCKPILING?


ANY INTEREST IN SELLING ADDITIONAL LITHIUM TO THE GOVERNMENT. A
NUMBER OF COMPANIES WERE INTERESTED. SO IN AUGUST THE INVITATION FOR
BIDS WENT OUT. THE QUANTITY AND SCHEDULE FOR DELIVERY WERE CLASSIFIED.
COMPANIES WERE GIVEN 90 DAYS TO ANSWER. BUT THE INVITATION TO BID WAS
WITHDRAWN BY THE GOVERNMENT ON SEPT. 3, PENDING A FURTHER REVIEW OF
LITHIUM REQUIREMENTS. ON OCT. 3 THE INVITATION WAS PERMANENTLY
WITHDRAWN. SO AEC SAYS THERE ARE NO IMMEDIATE REQUIREMENTS FOR
ADDITIONAL LITHIUM.
BUT BEAR IN MIND THAT ALL THIS CONCERNED

Lithium Makers Brace for Market Jolt

In a sweeping departure from earlier plans, the U.S. Atomic Energy Commission has threatened to slash its demands for lithium—long a big item on AEC's list of procurements for H-bombs. But domestic producers insist they haven't been caught napping. Though a drop in lithium sales would definitely hurt their business, they're already taking steps to offset the loss.

Procedure up to now has been for AEC to buy lithium hydroxide monohydrate, extract lithium-6 isotope, and sell the still-useful tailings back to the producers. And, as late as two months ago, AEC made it known that it needed still more lithium. Now, however, it has reversed this position, saying "there are no immediate requirements for additional lithium."

Major lithium makers have AEC contracts that run from nine months to two years hence, but the new AEC policy, they report, makes it uncertain that AEC will renew these commitments.

Still Negotiating: Foote Mineral, whose contract runs out in May '59, reports it hasn't given up hope of renewing its pact, is still talking with AEC, feels that new developments may spur AEC lithium needs in the future. Nevertheless, Board Chairman Gordon Chambers has informed stockholders "the commission does not now intend to negotiate for further supplies" (*CW Market Newsletter, Nov. 8*).

Lithium Corp. of America, with a contract through Jan. '60, feels that AEC is merely postponing new procurement.

The only other major AEC lithium contractor, American Potash, also feels that needs could change radically between now and Dec. '60, when its contract runs out.

Silence on Stockpiling: AEC itself will neither confirm nor deny that it intends to stop stockpiling lithium—although it has permanently withdrawn bids sent out last August to companies asking for additional supplies. Its policy, apparently, is to wait and see what its requirements will be next year.

A few guesses from lithium executives on why AEC acted as it did:

• Since the commission permanently withdrew its bids a day or two after the announcement that Project Plowshare (use of atomic and hydrogen bombs in mining, public works and other nonmilitary applications) was postponed, AEC's requirements for lithium may have decreased.

• New AEC Chairman McCone has taken a dim view of the agency's practice of letting long-term contracts, prefers a year-to-year basis.

• Secretary Dulles' philosophy of massive retaliation and other defense concepts may be undergoing another reappraisal.

Other Irons in the Fire: But even if the commission should stop buying lithium, domestic producers will not be caught off balance.

Foote has been preparing for such a reversal with a stepped-up diversification program. The Philadelphia firm, through its merger more than a year ago with Electromanganese Corp. (Knoxville, Tenn.), now sells about $5 million worth of manganese to the steel industry. And, as exclusive sales agent for Sherritt Gordon Mines Ltd. (Toronto) in the U.S. and Canada, it also handles about $20 million worth of nickel each year.

It's much the same story with Lithium Corp. of America. With an even greater portion of its sales dependent on AEC, it too has taken steps to minimize the impact of a loss in the commission's business.

LCA reports that it has embarked on a program of strengthening itself financially to provide working capital for expansion. It's also planning several still-under-wraps diversifications into and out of the light metals field.

American Potash says its American Lithium subsidiary will not change its current output rate, and professes optimism about the long-range outlook for lithium.

At present, the commercial lithium market is continuing to grow at a rate of 5-8%/year, according to American Potash. Principal applications: ceramic glazes and porcelain enamels using lithium carbonate, and all-purpose greases using lithium hydroxide. American Potash holds that the current "ample supply" of lithium chemicals "offers considerable encouragement for development of new uses."

WIDE WORLD

Judges Pine, Klaestad will make rulings on German claims.

New Surprise Rocks GAF

The destiny of General Aniline & Film Corp. is all up in the air again after last week's eerie surprise: Germany's I. G. Farben skeleton stepped out of its closet, pointed a bony finger at GAF, and boldly declared, "That company is mine."

In reality, this action was the filing of a petition in U.S. district court in Washington, D.C., on behalf of trustees for I. G. Farben in Liquidation (direct successor to the 1919-45 German chemical cartel that set up GAF 29 years ago as its manufacturing branch in the U.S.).

In laying claim to the GAF stock that has been held by the U.S. government's Alien Property Custodian since early in World War II, the Farben trustees were directly contradicting the principal contention of Interhandel, the Swiss holding company that for 13 years has been suing to get the GAF shares. Interhandel has always insisted that it has had clear title to the stock ever since '39, and that GAF therefore should never have been seized as "enemy property."

This contention has been vigorously denied by the U.S. government; it has maintained—in district court, circuit court and Supreme Court—that Interhandel was established simply to serve as a neutral nation "cloak" for I. G. Farben's allegedly real but indirect ownership.

Settlement Now Unlikely: The Farben trustees' petition to intervene in the case before it comes to trial does these things:

• It suggests a reason for last summer's battle for control of Interhandel, which reportedly is now in the hands of Swiss bankers. The new regime, according to one account, took over on the Interhandel board after deposing the last directors named by the old Farben management.

• It may help to explain a new round of rumors—all from nongovernment sources—that Interhandel and the U.S. Justice Dept. were about to agree on an out-of-court settlement that would clear the way for government sale of the GAF stock.

• It adds a complication that may kill Interhandel's hopes for just such a settlement.

Legal Action Abroad: On the very day the trustees filed their petition for judicial determination of GAF's true ownership, the dispute over the $100-million U.S. concern came before the International Court of Justice at The Hague (the Netherlands). That

United Nations tribunal was addressed by Swiss and U.S. governmental officials. Switzerland's attorney asked the World Court to call on the U.S. to hand over the stock to Interhandel; the U.S. representative argued that Switzerland has no case, that the World Court doesn't have jurisdiction and that Interhandel will get fair treatment in the U.S. courts.

Thus, the courses these two lawsuits will take next depend on rulings by the courts: the World Court —headed by Norway's Helge Klaestad—must first decide whether it has jurisdiction in the Swiss-U.S. case; and the U.S. district court—probably in the person of Judge David Pine—must decide whether to let the Farben trustees take part in the Interhandel-U.S. litigation.

Act of Desperation: The Farben trustees' motion—asserting that Interhandel actually was an instrumentality of Farben and was the holder but not the owner of the GAF stock—is regarded as a desperate move to give Farben-in-Liquidation stockholders a stake in return or sale of the vested stock.

Interhandel angrily denounced the Farben trustees for waiting 10 years, then making "this wholly unjustified attempt" to intervene "on the very eve of a possible settlement." Interhandel's attorney says the Farben trustees had previously approached the Swiss concern and offered to withhold their petition if Interhandel would "negotiate some solution."

Allied Eyes Euromart

Allied Chemical last week took its first steps toward getting inside the rising walls of the European "Common Market" by setting up an office in Brussels.

The company's export sales arm, Allied Chemical International, established the new office to give close support to the independent distributors that actually do all of Allied's foreign selling. Allied International hopes to boost European sales (most of its export selling has so far been to South America) through its new office, which will act as liaison between the distributors and New York headquarters, explore ways to step up service and develop "greater sales opportunities."

Although Allied says it has no definite plans to manufacture in Europe, eventual production there is a possibility. Many of Allied's U.S.-made bulk chemicals now can't compete in European markets, largely due to the freight cost burden, which locally manufactured products don't have.

More likely to spur Allied into European production are the coming Euromart tariffs. "We feel the Common Market is inevitable," Allied says, "and we will have to do something about it."

Keeping a close watch on European economic conditions will be one of the jobs of Grant Sita, head of the new office. And Divisional Vice-President J. Ross Tuttle, new technical director of Allied's European operations, will explore prospects of exchanging "know-how" and licenses with European producers.

Fourth Path to Profit

Eastman Chemical Products last week commercially launched its long-experimental poly (methyl 2-cyanoacrylate) as an industrial adhesive. The move is the latest to underscore Eastman's determination to increase sales of chemical, cellulose and plastic products, now running close to $200 million/year.

This chemical marketing subsidiary of Eastman Kodak has now outlined four major areas in which it hopes to grow in the years ahead: polypropylene resins, for which another Eastman unit — probably Texas Eastman — is planning to build a commercial-scale plant; Tennessee Eastman's new Kodel polyester fiber, expected to be used in some apparel lines next spring; plastics for home furnishings, dramatized in Eastman Chemical's five-room "House of Color" at the home furnishings show in the New York Coliseum; and now this Eastman 910 Adhesive, which was unveiled 13 months ago (*CW, Oct. 26, '57, p. 59*).

For marketing the new adhesive, Eastman Chemical has allied with Armstrong Cork Co.'s Industrial Division, noted for its long-time experience with industrial adhesives and for its strong sales force. Also, special kits of the adhesive will be marketed separately by two manufacturers of strain gauges, Baldwin-Lima-Hamilton Corp. and Tatnall Measuring System Co.

Trading Rules Eased

Numerous chemical products and some types of chemical equipment are among some 261 items dropped this week from the U.S. government's "positive list" (goods that can't be exported without special end-user licenses). But the move is not expected to lead to any noteworthy increase in East-West trade.

Actually, the Commerce Dept.'s decision to strike 261 items from the strategic control "positive" list and to add 80 other commodities to it is being carried out under a policy authorized some six months ago. Commodities dropped from the export control group now can be shipped under general license to all non-Communist countries. Individual licenses are still required for each shipment of almost all kinds of goods to the Soviet countries in Europe; and all trade with Communist Asia remains prohibited.

Among the items removed from the positive list:

Five types of chemical equipment, four coal-tar products, 21 chemical specialties, 24 industrial chemicals, two types of carbon black, four types of explosives, all types of polio vaccine, three paper products, seven petroleum products, five rubber products, and nylon parachute cloth.

Chemical equipment items removed from the positive list: equipment for production of chlorine, sodium and magnesium and for production or refining of nonpetroleum hydrocarbons; hydrogenation equipment operating at 360 psi. or more; cast iron shafts for pyrites roasters; and Cottrell-type electrostatic precipitators.

Soviet chances of procuring big amounts of U. S. chemical equipment — even assuming that Moscow could pay for it — are not affected by this week's Commerce Dept. move.

The move does reflect a change in policy on exports to the European Soviet bloc, however, following up last summer's agreement among Western nations to make more products eligible for export. The change amounts to this: In the past, an application for a license to ship any of the 261 items just dropped from the positive list to the Soviet bloc was likely to be rejected. Now it probably would be approved, unless there were suspicious circumstances involved—or unless U.S. policy veers again.

WRAPPING UP NINE-MONTH EARNINGS

	Sales 1st 9 mos. '58 ($ million)	Change from 1st 9 mos. '57 (percent)	Earnings 1st 9 mos. '58 ($ million)	Change from 1st 9 mos. '57 (percent)
Abbott Laboratories (1)	$ 90.8	up 8.1%	$ 10.2	up 5.0%
American Potash & Chemical	35.6	(2)	3.2	(2)
Catalin Corp.	15.3	down 16.8%	0.1	down 62.0%
Celanese Corp.	163.6	up 12.3%	10.1	up 18.0%
Commercial Solvents	46.7	down 1.1%	1.1	down 4.2%
Food Machinery & Chemical (3)	241.1	down 0.3%	12.4	up 1.5%
Foote Mineral	17.8	down 7.2%	1.6	down 10.5%
General Aniline & Film	103.6	up 0.6%	3.3	down 12.6%
Heyden Newport Chemical (4)	35.3	down 4.1%	1.1	down 44.3%
Lithium Corp. of America	8.5	down 13.4%	0.6	down 70.0%
Mallinckrodt Chemical	24.8	up 1.9%	0.5	down 16.9%
Merck & Co.	153.9	up 11.1%	21.1	up 19.6%
Metal & Thermit Corp.	25.8	down 21.7%	0.5	down 50.4%
Michigan Chemical (5)	7.4	up 5.6%	0.3	down 51.2%
Minerals & Chemicals Corp.	11.4	down 7.9%	0.8	down 31.7%
National Lead Co.	338.9	down 18.8%	32.4	down 24.1%
Norwich Pharmacal	27.3	up 11.9%	3.0	up 2.8%
Pennsalt Chemicals	59.3	down 3.4%	2.8	up 8.9%
Pittsburgh Coke & Chemical	33.1	down 18.5%	0.7	down 71.1%
Pittsburgh Plate Glass	400.6	down 15.1%	24.8	down 43.1%
Searle, G. D.	25.0	up 8.5%	5.4	(2)
Stepan Chemical	11.0	up 0.7%	0.7	up 1.6%
Sun Chemical	37.1	up 10.0%	0.6	down 29.2%
Texas Gulf Sulphur	40.3	down 23.0%	10.0	down 27.1%
Thiokol Chemical	54.6	up 39.9%	1.7	up 31.7%
Victor Chemical	39.6	up 5.3%	2.6	down 5.8%

(1) Consolidated U.S. and foreign operations.
(2) Comparison not possible because results reported for earlier periods do not include operations of subsidiaries or acquisitions.
(3) Gross income, including rental of equipment.
(4) Excluding non-recurring income.
(5) Third-quarter income reduced by strike.

Latest Company Data: Uplift Is No Mirage

For most chemical companies, monthly sales volume is already close to last year's high levels; and profit margins—though still decidedly lower—are improving steadily.

These trends are shown in statements this week from traditionally late-reporting companies (*table*).

Nine-month totals, '58 vs. '57, show that pharmaceutical companies' sales and earnings have made strong gains despite the recession. Thiokol's rockets and propellents business has been growing apace, and Celanese continues to expand in plastics and strategic industrial chemicals.

Updating figures in *CW*'s earlier table of third-quarter results (*CW, Nov. 1, p. 20*): Du Pont, nine-month net, $133.6 million, and third-quarter net, $50.7 million; Pan American Sulphur, third-quarter net up 30.2%; Reichhold, nine-month net up 2.2%, third-quarter net up 9.5%.

COMPANIES

Schering Corp. (Bloomfield, N.J.) is acquiring American Scientific Laboratories, Inc. (Madison, Wis.), through an exchange of stock. American Scientific, which makes veterinary biologicals and pharmaceuticals, will become a wholly owned subsidiary of Schering. Schering says it will expand the Madison firm following the acquisition.

•

Cary Chemical is offering its common-stock holders rights to subscribe to 165,830 common shares of its new subsidiary, Chemirad Corp., on the basis of one share for each four shares of Cary. Lee Higginson Corp. and P. W. Brooks & Co. Inc. will underwrite the offering. Proceeds will be used to obtain design and process data and to build a pilot plant for evaluating entry by Chemirad into a new chemical field. Details of the proposed new venture were not disclosed.

•

Freeport Sulphur Co. has completed the sale of some oil and gas properties to Magnolia Petroleum Co. for about $100 million. Ownership of interests in the Lake Washington field in Louisiana have been transferred to Magnolia.

Freeport President Charles Wright said his company will continue to seek new oil properties and to develop its oil and gas interests in Louisiana, Texas, Oklahoma and Kansas.

EXPANSION

Gas Chemicals: Shell Oil Co. is planning a natural gas processing and cycling plant in Louisiana, at Weeks Island field. The new installation will process 120 million cu. ft./day of natural gas, recover desirable hydrocarbons such as propane and butane, and return the gas to the producing formation.

•

Helium: The U.S. Bureau of Mines has hired The Fluor Corp. (Los Angeles) to build its new helium extraction plant in Oklahoma's Keyes oil and gas field (*CW Washington Newsletter, Nov. 1, p. 27*). About $12 million is available for construction work, which will get under way this month.

•

Calcium, Magnesium: Olite Mineral Corp., newly organized in Nashville, Tenn., is blueprinting four new plants in Tennessee to process calcium and magnesium products from the mineral deposits in adjacent areas.

They will be located at Dover, near Cumberland City, near Stewart and at Anderson. The first plant to be built, either at Dover or Anderson, is scheduled for completion by Feb. 1, '59. The Anderson unit will manufacture calcium compounds for use in making rubber, paint and glass, while the Dover plant will make cement.

•

Fertilizer: Bunker Hill Co. (San Francisco) has optioned a site along the Columbia River near Hedges, Wash., where it plans to build a $10-million, 200,000-tons/year phosphate fertilizer plant (*CW, Nov. 1, p. 23*). The new unit will use acid produced at Bunker Hill's Kellogg, Ida., complex.

The move follows upon a decision by fertilizer maker J. R. Simplot Co.—one of Bunker Hill's largest sulfuric acid customers—to produce its own sulfuric at a new, 300-tons/day plant in Pocatello, Ida.

•

Fiber Drums: Continental Can Co. is buying 15 acres in Carteret, N.J., as the site for a large plant to manufacture fiber drums. The company has scheduled startup of the new unit by mid-'59, will employ about 125 persons.

FOREIGN

Pharmaceuticals/Jamaica: British, U.S., and Caribbean interests have formed The Federated Pharmaceutical Co., Ltd., will build a plant in Jamaica to produce a full line of pharmaceuticals. Products will include chemotherapeutics, tranquilizers, vitamins, hormones, antibiotics, sedatives, antihistamines, tropical medicines, other ethical and proprietary drugs. Managing director and production manager of the new firm are two former Wyeth International Ltd. executives.

•

Chemicals, Equipment/Russia: Russia plans to buy chemical products and equipment from Sweden, if a proposed $58-million/year trade agreement works out. Negotiations start this month in Stockholm. Russia's chief interest: plastics and plastics manufacturing equipment; electronic computers and construction equipment. Sweden would step up its imports of oil and oil products, pig iron and grain.

•

Carbon Black/Netherlands: The Ketjen Sulphuric Acid Works (Amsterdam) will build a $3.4-million carbon black plant near Rotterdam, under a licensing agreement with Godfrey L. Cabot (Boston). It will be operated by a new Ketjen subsidiary, Ketjen Carbon, in which Ketjen is major owner. Initial capacity: 13,000 tons/year.

•

Engineering/Netherlands: Badger Manufacturing Co. (Cambridge, Mass.) has become sole owner of Badger-Comprimo N.V., the engineering and construction firm it formed two years ago with Comprimo N.V. Each parent company held 50% ownership. The subsidiary, now called Badger N.V., was set up to serve chemical, petroleum, pharmaceutical, and nuclear power companies using European equipment and currencies.

FOR PRESSURE CANS

WITH AN UNRIVALED

SALES RECORD...

FOLLOW THE LEADERS TO CANCO

More shaving lather is sold in Canco pressure cans than in all other makes combined. Naturally, there are good reasons for this success!

Canco makes a full line of *guaranteed* pressure cans in seven sizes—with standard one-inch cup openings or individually styled tops. To give you a round-the-can label design, Canco has developed the first commercial coated side-seam.

Canco also offers experienced assistance from technical service experts and other specialists. And through nationwide consumer advertising, Canco has helped boost sales for all its customers in the aerosol industry! So, for *any* pressure product, take the leaders' tip—come to Canco first!

AMERICAN CAN COMPANY

Just Printed! Colorful folder on Canco products and services in the aerosol field. For a free copy write to American Can Company, 100 Park Ave., New York 17, N.Y.

Now for the first time!

a complete line of lower alkyl amines . . . .

New METHYLAMINES unit makes Pennsalt first supplier of alkyl amines of one through five carbon atoms, and their derivatives

Want to cut amines cost? Take advantage of the extensive line of 'Sharples' brand amines and derivatives made by Pennsalt. This line is now even broader than ever through the addition of methylamines—the most economical source of amino nitrogen.

You can get all these amines economically, by ordering in combination shipments in tank car, tank wagon and carload lots—to give you quantity savings on all your requirements.

With all Pennsalt 'Sharples' brand amines, you get a quarter century's experience and reputation for high quality and fast, dependable service. Our high production capacity assures you of getting all these amines in the quantities you want . . . better reason than ever to make Pennsalt your one-stop headquarters for amines.

Whatever your amine needs, try Pennsalt first. One-stop buying can pay off for you. Call your Pennsalt representative today.

Check this **"ONE-STOP SHOPPING LIST" of Pennsalt alkyl amines**

Methylamine
Dimethylamine
Trimethylamine
Monoethylamine
Diethylamine
Triethylamine

Mono-n-propylamine
Di-n-propylamine
Tri-n-propylamine
Isopropylamine
Diisopropylamine
Monobutylamine

Dibutylamine
Tributylamine
Monoisobutylamine
Diisobutylamine
Monoamylamine
Diamylamine
Triamylamine

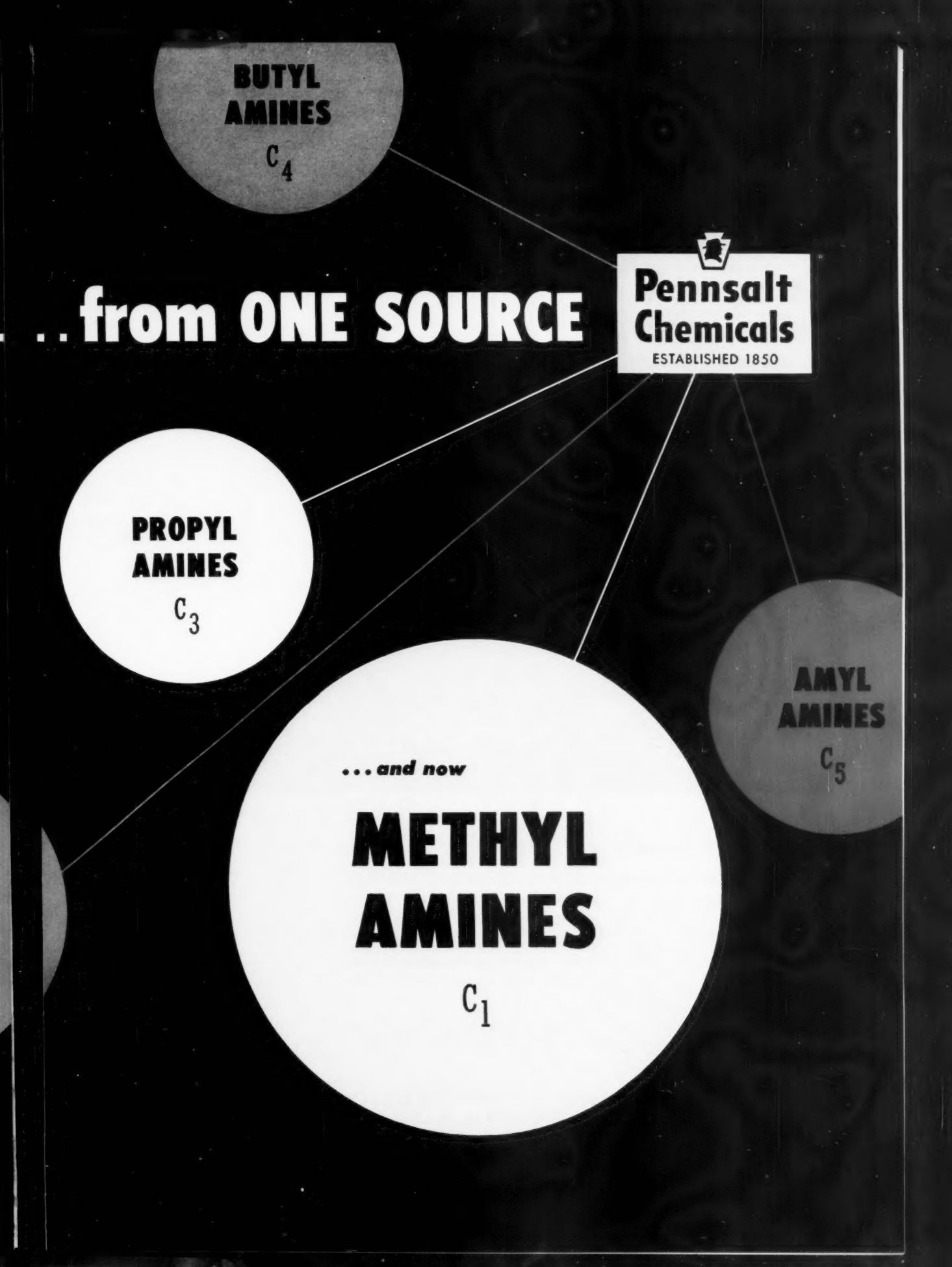
ETHYL AMINES
C_2

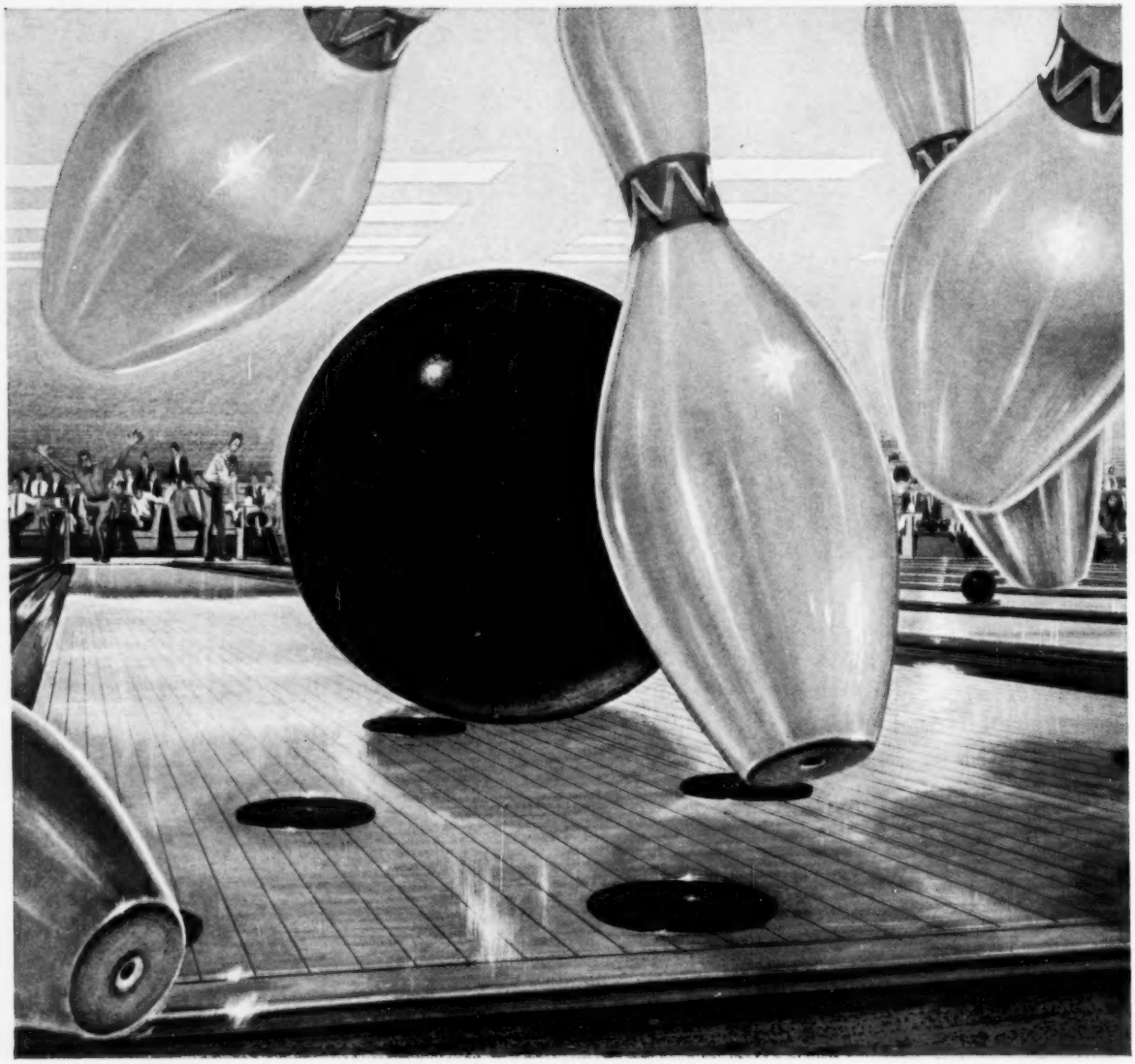
- ***plus*** ***another*** **entire family of ethylene oxide derivatives of the above alkyl amines, and special amines made in the quantities you need.**

INDUSTRIAL CHEMICALS DIVISION
PENNSALT CHEMICALS CORPORATION
3 Penn Center, Philadelphia 2, Pa.

Chicago • Detroit • New York • Philadelphia • Pittsburgh • St. Louis • Appleton • Atlanta
Martin, Hoyt & Milne, San Francisco and Los Angeles • Airco Company International, New York
Pennsalt Chemicals of Canada Ltd., Oakville, Ontario

See our catalog in CMC


BUTYL AMINES
C_4
. . . from ONE SOURCE
Pennsalt Chemicals
ESTABLISHED 1850
PROPYL AMINES
C_3
AMYL AMINES
C_5
. . . and now
METHYL AMINES
C_1



For the finest in finishes—

specify Shell Chemical products for surface coatings

FOR MANY YEARS, manufacturers of decorative and protective surface coatings have depended on Shell solvents and resins for quality and economy.

Shell's family of solvents assures you complete formulating flexibility . . . meets or exceeds highest standards.

Shell Epon® resins produce finishes that offer outstanding resistance to abrasion, impact and chemical attack.

In the production of alkyd resin and ester gum coatings, *Shell glycerine* provides outstanding quality and performance.

For information and technical literature on specific products, write us now.

Acetone
Bisphenol-A
Diacetone Alcohol
Di-Tertiary Butyl Peroxide
Epon® Resins
Ethyl Alcohol
Ethyl Amyl Ketone
Glycerine
Hexylene Glycol
Isopropyl Alcohol
Isopropyl Ether
Mesityl Oxide
Methyl Ethyl Ketone
Methyl Isobutyl Carbinol
Methyl Isobutyl Ketone
Neosol® Proprietary Solvent
p-Tertiary Butyl Benzoic Acid
Secondary Butyl Alcohol

SHELL

SHELL CHEMICAL CORPORATION
CHEMICAL SALES DIVISION

Atlanta • Boston • Chicago • Cleveland • Detroit • Houston • Los Angeles • Newark • New York • San Francisco • St. Louis
IN CANADA: Chemical Division, Shell Oil Company of Canada, Limited, Montreal • Toronto • Vancouver

Washington
Newsletter

CHEMICAL WEEK
November 15, 1958

What does the political shift to the left mean to business? Business issues—recession, unemployment, farm subsidies, inflation, union labor, "right to work"—figured prominently in election results across the country. What action the new Congress will take in these areas will largely reflect the new balance of power.

Senator Johnson and Speaker Sam Rayburn are still in charge—but the might of the conservative bloc has been sharply reduced. In fact, it seems clear that the Northern Democrats (with allies among the liberal Republicans) can outvote, on almost any issue, the bloc that has had control for years—the conservative Southern Democrats and their GOP allies.

With this in mind, Johnson's own legislative program assumes greater significance than previously. Before, his moves served as a basis for negotiating with Eisenhower through "statesmanship"—dealing amicably with the Administration.

Now the Northern Democrats have the votes and Johnson will have to give them a bigger say. Certainly, the New Deal-Fair Deal coloration of the huge Democratic majorities in both houses gives him much less room for the kind of political maneuvering on which his reputation is based. He will now have to pay much more attention to the new stature of Northern senators. Among these new powers:

Senators Kennedy (Mass.), Jackson (Wash.), Symington (Mo.), who want to spend more on defense to wash out the Soviet lead in space-age and conventional weapons.

Humphrey (Minn.), Kefauver (Tenn.) and O'Mahoney (Wyo.), New Deal-Fair Deal lawmakers, who will be more influential than ever on such things as antitrust, pricing practices of business, foreign policy and farm legislation.

Anderson (N.M.), and Gore (Tenn.), who will exact more leverage for a big federal atomic program.

Mansfield (Mont.), who will be stronger on foreign policy in the absence of such opposition as Senators Malone, Bricker, Knowland, Barrett and Jenner.

Here is the background for appraising the legislative issues Johnson says will have to be handled in Congress beginning next January:

(1) High interest rates, "which are slowing the needed growth of the economy," must be dealt with.

(2) The space agency needs an aggressive program pointed directly at outer space exploration.

(3) A new farm program is needed; something is wrong when the government spends "53¢ for every net dollar the farmer takes in."

(4) Peaceful uses of the atom must be developed, with emphasis on a nuclear-powered merchant fleet.

(5) The supply and conservation of water must be stepped up.

(6) Foreign policy requires "bold, new imaginative programs."

(7) Depressed areas of the U.S. must be helped.

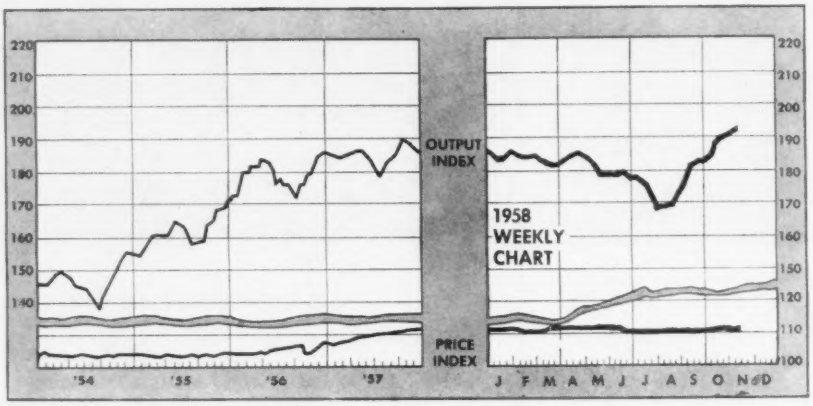
(8) Housing programs should provide "a home for every American family."

(9) Airports, "totally inadequate for the jet age, should undergo modernization.

(10) Urban renewal programs must bring "new health and vitality to our cities."

Johnson and the Democrats are, of course, interested in furthering their drive to take the White House in '60.

But the Northern Democrats won't have everything their own way. Southern conservatives still will control the key committee chairmanships. From these positions of strength, they can exert strong influence on the shape of bills before Congress. Nevertheless, on issues where liberal-conservative lines can be drawn clearly, the liberals have a voting edge.



Business Indicators

WEEKLY	Latest Week	Preceding Week	Year Ago
Chemical Week output index (1947-49=100)	193.0	191.0	190.5
Chemical Week wholesale price index (1947=100)	111.2	110.5	111.1
Stock price index of 11 chemical companies (Standard & Poor's Corp.)	46.00	45.49	38.53

MONTHLY Employment (thousands)	Latest Month	Preceding Month	Year Ago
All manufacturing	11,895	11,649	12,993
Nondurable goods	5,364	5,307	5,579
Chemicals and allied products	512.4	506.5	541.8

Footwear courtesy of Abercrombie & Fitch Company

One pair fits exactly

Just as one kind of footwear fits a special purpose, Sinclair can fit *your* needs for nitrogen products—exactly!

Before you buy, check these points: Does your present supplier offer top quality nitrogen products? Are they readily available even during peak seasons? Moreover, can you get prompt, reliable, low-cost delivery?

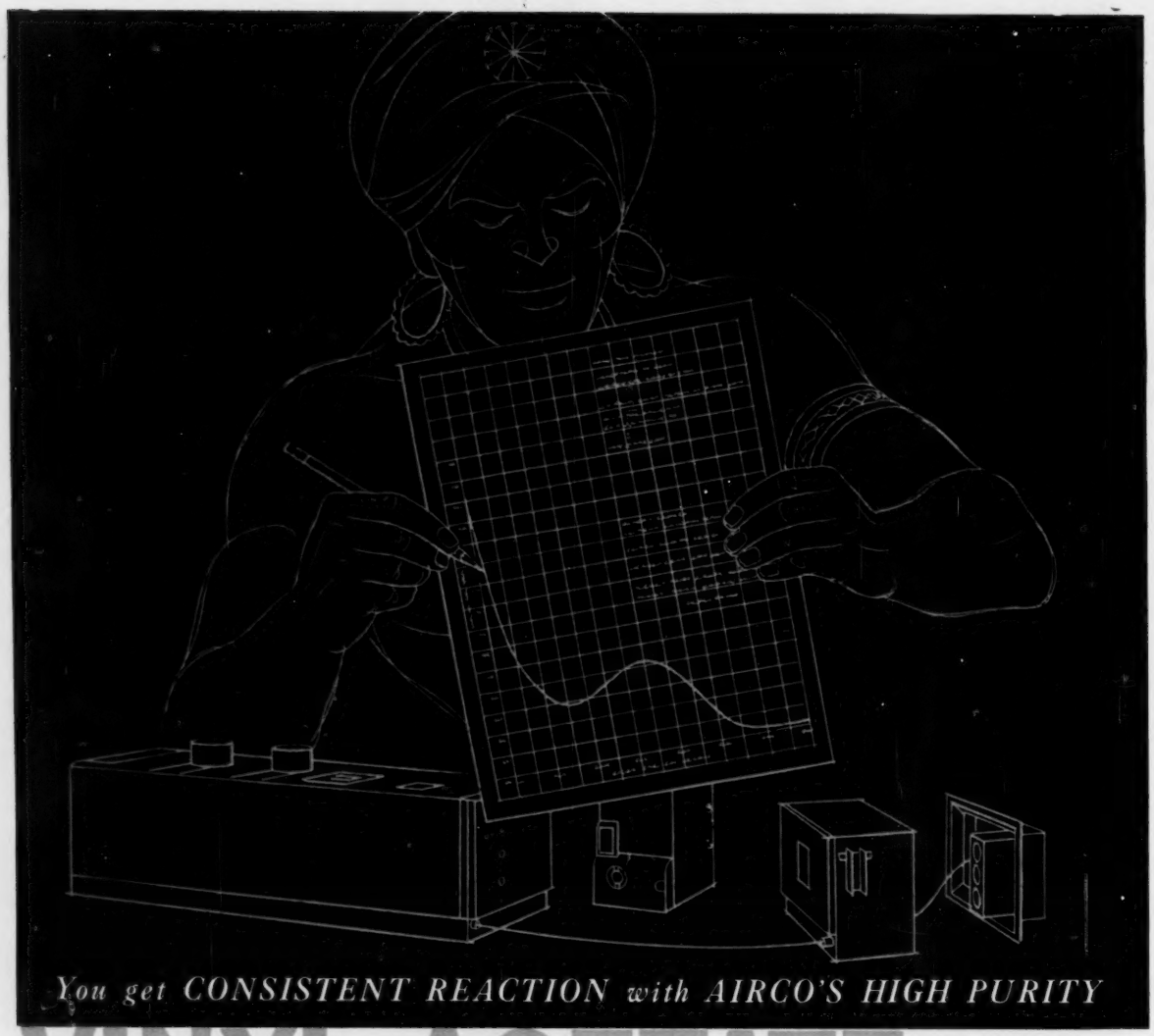
Sinclair is in a position to fill all your requirements—exactly. We can speed top quality nitrogen products to you from Hammond, Indiana—the center of the Midwest's transportation system.

Vast storage facilities for anhydrous ammonia and nitrogen solutions assure delivery where and *when* you need it. To solve *your* supply problem, make Sinclair your source!

Anhydrous Ammonia • Ammonium Nitrate Solutions • Aqua Ammonia • Nitrogen Fertilizer Solutions • Aliphatic Solvents • Odorless Solvents • Aromatic Solvents • Heavy Aromatic Solvent • Toluene (Nitration Grade) • Xylene (Five Degree) • *para*-Xylene • Sulfur Sulfonates (Oil Soluble) • Corrosion Inhibitors Lube Oil Additives • High Purity Propylene

SINCLAIR
CHEMICALS, INC.

Affiliate of Sinclair Refining Company
600 Fifth Avenue, New York 20, N. Y.
155 North Wacker Drive, Chicago 6, Ill.



You get CONSISTENT REACTION with AIRCO'S HIGH PURITY

VINYL ACETATE MONOMER

Every bulk shipment of AIRCO vinyl acetate monomer must pass inspection by ultraviolet spectrophotometry. The entire absorbance curve of the sample must lie within the established boundary characteristic of highest purity monomer. This sensitive technique, which can detect trace amounts of impurities, is used in conjunction with numerous other analytical procedures as a routine part of AIRCO quality control.

When you specify AIRCO Vinyl Acetate Monomer you can always depend on high purity and the resulting consistent reaction characteristics that are so important to you in cost control and polymer performance.

Order your Vinyl Acetate Monomer from AIRCO. Available in tank car, tank truck and drum quantities. Remember also that when you need help in solving specific technical problems we're glad to lend a hand.

AT THE FRONTIERS OF PROGRESS YOU'LL FIND . . .

AIRCO®

AIR REDUCTION CHEMICAL COMPANY

A division of Air Reduction Company, Incorporated
150 East 42nd Street, New York 17, N. Y. • YUkon 6-7116
Represented Internationally by Airco Company International

DU PONT'S CHALKER

CYANAMID'S BRADLEY

MCA'S HULL

SHELL'S BURROUGHS

DOW'S ADAMS

WIDE WORLD

SURGEON GENERAL BURNEY

Spelling Out CPI's Stake in Air Pollution

Chemical process industries executives will be out in strength for the first national conference on air pollution next week in Washington's Sheraton-Park Hotel.

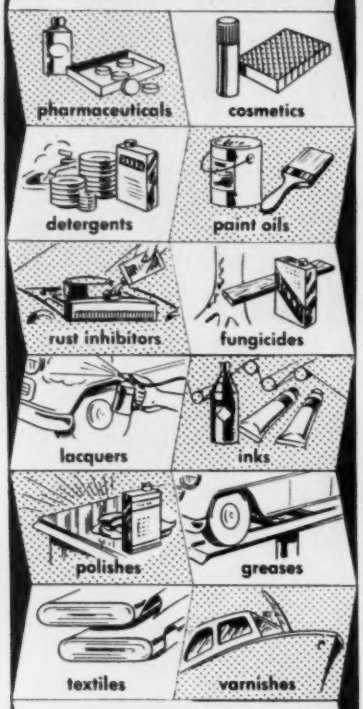
The conference, first of its kind, will see a heavy turnout of air pollution specialists—industrialists, state and local health and engineering officials, university and other scentists, medical experts and representatives of leading civic organizations.

For chemical, petroleum refining, metallurgical and other process industries, the stake is twofold: for the first time, they will find themselves getting publicity on their own air pollution as it bears on an increasingly serious health problem. They will be pressed to come up with arguments to counter public sentiment for tougher governmental enforcement machinery. Industry successfully repulsed efforts in Congress to extend federal water pollution controls to air pollution. In '55, a federal air pollution program was passed, restricted to research.

Basically, the conference was designed by U. S. Surgeon General Leroy Burney to bring together the air pollution experts of the country to swap information and ideas on man-made pollution of the atmosphere.

The conference will cover such major aspects as the extent of air pollution, largely devoted to methods of measurement and behavior of pollutants; sources of air pollution, including a report on chemical sources by E. M. Adams, of Dow Chemical Co.; health effects of air pollution, including its relation to cancer; and a report on by-product recovery and development by American Cyanamid's William R. Bradley. Other chemical representatives on the program include General John E. Hull,

Better Products Start With Better Ingredients... Humphrey-Wilkinson Intermediates



Quality products call for quality constituents; for example, the high purity chemicals manufactured by Humphrey-Wilkinson for research and specialty use. This young, progressive firm, by virtue of its unique production methods, makes alkenyl succinic acids and anhydrides without peer regardless of plant size. Saturated hydrocarbons, so pure they're unmatched for calibrating purposes . . . aliphatics, olefins, alcohols, mercaptans, thioethers, to name a few, are meticulously created for use in finer products 'round the world. If your product deserves this calibre of content, it will pay you to contact Humphrey-Wilkinson to-day. Your file is incomplete without Humphrey-Wilkinson's new catalog of high purity aliphatic chemicals. WRITE NOW for your copy.

HUMPHREY-WILKINSON, INC.

Serving the Blue Book of Industry with Intermediates and Research Chemicals Since 1947

339 Devine St., North Haven, Conn.

of the Manufacturing Chemists' Assn.; L. C. Burroughs, of Shell Oil Co.; Du Pont's William F. Chalker; and Howard Roderick, of International Minerals & Chemicals Corp.

The program could provide the needed push to get Congress to boost federal air pollution research funds to the $5-million/year level authorized under the present law. Actual appropriations have been $4 million in each of the last two years.

For the chemical industry more than most, the major problem is finding out exactly what happens to its gaseous and other effluents in the atmosphere. The problem arises from indications that chemical effluents, once in the atmosphere, often combine—forming new types of pollutants that are difficult to capture and analyze, much less control. These new forms may vary, depending on atmospheric conditions at the time, and become a potential health hazard in large-population centers when conditions favor smog accumulation.

Prominent on the program is the goal of setting up a unified 10-year plan of action that would propose goals and outline steps necessary to achieve them, both in research and in control activities. Organizers of the conference, while setting no rigid goals, will try to hold the discussion to objectives that can be realized within the reasonably near future. This is one of the reasons why radioactivity is not a subject for the conference. Organizers figure that industry, government agencies and others involved in curbing air pollution have a hard enough task ahead in finding the answers to the more conventional sources of man-made atmospheric contaminants, without such highly controversial and complex issues as radioactivity to contend with.

Suggestion Awards

A chemical process firm was rated tops in recent awards for outstanding employee suggestion systems.

Abbott Laboratories has won the 1958 award made by the National Assn. of Suggestion Systems for showing the highest rate of improvement in the number of suggestions received per 1,000 employees during '57.

Abbott's improvement rate of 108% topped those of the other 229 member firms in the association. Abbott people in '57 submitted nearly 2,800 suggestions during the year, averaging 746 per 1,000 employees. Abbott reports it adopted suggestions producing tangible savings of more than $121,000 during the year.

All told, Abbott paid out $14,566 in awards last year. The highest, $750, went to a worker who submitted an idea for reducing the number of rejections from a tableting machine.

Phillips Tax Set

In a decision that will most likely affect subsequent disputes over state and local taxation of federally owned, privately operated plants, the Texas supreme court has ruled that the Dumas, Tex., school district may collect property taxes from Phillips Chemical Co. as operator of the federal government's Cactus ordnance plant.

The ruling may be expected to figure in the current $1.8-million tax suit involving Du Pont and the state of South Carolina (*CW, Oct. 11, p. 44*).

In its decision, the court rejected 5-4 a company motion for rehearing, holding that the huge plant may be taxed by the school district for the period beginning March 17, '50, under an act of the U.S. Congress. The court rejected the district's request to collect taxes from Phillips for '49 and part of '50 (before the federal law took effect).

Phillips leased the World War II munitions plant in '48, agreeing to pay the federal government $1,026,667 annually. The Dumas equalization board set the plant's taxable value at better than $21 million and set the annual school tax at close to $68,000.

Although the decision is expected to have a bearing on other cases dealing with local taxation of federally owned property, the Phillips litigation has the distinction of involving property operated solely for the profit of the private company. In the Du Pont-South Carolina suit, the company and the federal government are arguing that since the Savannah River plant at Aiken, S.C., is operated solely for the federal government, any tax on the plant should be billed to the government. This would amount to a state taxing the federal government, which is prohibited by the federal constitution.

IS YOUR FILE UP TO DATE?

If you use any of these chemicals, you'll want Allied's latest technical, price and delivery information on them. To get it, just call or write your nearest Nitrogen Division branch office. Or simply check right on this ad the materials of interest to you, clip it to your letterhead and mail to Nitrogen Division's New York headquarters.

ANHYDROUS AMMONIA — This basic industrial chemical is available in commercial and refrigeration grades from three strategically located plants.

AQUA AMMONIA (NH_4OH) — An economical source of nitrogen and an easily handled alkali.

AMMONIUM NITRATE — In pelleted form. Typical analysis: Ammonium Nitrate content — 96% or more.

AMMONIUM SULFATE — Diverse uses include fireproofing, fertilizers, leather tanning.

NFS-83 and NFS-50—Ammonium nitrate-water solutions containing respectively 83% and 50% NH_4NO_3. For explosives, fluid catalysts, pharmaceutical applications.

ETHYLENE OXIDE — Rocket propellant, fumigant, fungicide, chemical intermediate.

ETHYLENE GLYCOL — Also DI- and TRI-. Humectants, plasticizers, scrubbing solutions for gas dehydration, scores of other industrial uses.

ETHANOLAMINES—MEA, DEA and TEA. Versatile, reactive, easy to handle. TEA available in 98% and commercial grades.

FORMALDEHYDE — Available as 37% Inhibited, 37% Low-Methanol, 45% Low-Methanol, 50% Low-Methanol.

METHANOL — In barge, tank car and tank truck quantities, all 99.85% pure.

NITROGEN TETROXIDE—High energy oxidant for liquid rocket propellants. Easy to handle and store.

SODIUM NITRATE — Three grades — coarse, medium, fine — to meet exacting process requirements. 99.5% pure.

UREA — Multiplant production assures unfailing supply of this basic chemical in crystal and pelleted form.

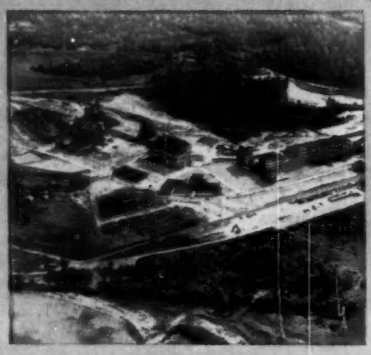
U-F CONCENTRATE-85 — Highly concentrated solution of urea (25%) and formaldehyde (60%). Easy to handle, economical source of these materials for resins and adhesives.

Branch Offices: Atlanta 3, Ga. • Chicago, Ill. • Cleveland 15, Ohio • Columbia, Mo. • Columbia 1, S. C • Hopewell, Va. • Indianapolis 20, Ind. • Ironton, Ohio • Kalamazoo, Mich. • Los Angeles 5, Cal. • New York 6, N. Y. • Omaha 7, Nebr. • Orange, Texas • San Francisco 4, Cal. • St. Paul 4, Minn.

NITROGEN DIVISION
Dept. AP 8-7-2, 40 Rector Street, New York 6, N. Y.

Allied Chemical

PUT YOUR PLANT "on top of the world"...
at Marley Neck, Port of Baltimore



BIG SITES—BIG labor pool—*unsurpassed* land transport—to serve economically the nation's largest markets.

POWER *right on the site,* from this plant of Baltimore Gas and Electric, one of an integrated grid . . . 10,000,000 kw, at economical industrial rates!

WORLD MARKETS from Marley Neck through deep-water sea-lanes from one of the *world's largest* privately-owned rail-marine terminals.

Plan *with a B&O man!*

PHONE OR WRITE:

T. G. GORDON, Industrial Agent — BALTIMORE 1—LExington 9-0400
G.E. FERENCE, Industrial Development Agt. — NEW YORK 4—Digby 4-1600
A. C. TODD, Industrial Agent — CINCINNATI 2—DUnbar 1-2900
FIELDING H. LEWIS, Industrial Agent — PITTSBURGH 22—COurt 1-6220
W. E. OLIVER, Industrial Agent — CHICAGO 7—WAbash 2-2211

B&O

BALTIMORE & OHIO RAILROAD

Constantly *doing things*—better!

TECHNICAL MEN TOP THE WAGE PYRAMID

'57 Average Gross Monthly Earnings of Employees in West German Chemical and Allied Industries

	Administrative	Technical	All
Chemical	$124.24	$154.94	$133.28
Rubber and asbestos	114.95	148.75	122.57
Synthetic fibers	122.81	148.04	132.09
Plastic processing	109.24	148.75	119.24
Glass	114.24	151.84	123.52
Paper mills	137.33	176.60	148.04
Paper processing	113.29	148.99	119.48
Petroleum refining	132.57	160.89	143.75
All industry and commerce	106.15	156.37	115.19

Source: German Federal Statistical Office.

Close Look at German Chemical Salaries

Chemical process industries' executives eyeing West German chemical production and markets this week have a new survey of that country's white-collar and technical salaries in industry and commerce.

The survey, with its breakdown of chemical and allied industries salaries (*see above*), presents for the first time a detailed look at salaries throughout West Germany of all employees up through the junior-management level. Although the government survey of '57 salaries does not include salaries of board members and management with full or top managerial powers, nor salaries of employees in the Saar and in West Berlin, it is far more inclusive than past studies. Previously, only wages of factory labor were covered in the official census.

Included in the 4,500-word summary of the latest survey—translated for U. S. distribution by Continental Translation Service (New York)—are these significant facts:

- The survey covered 686,000 employees, was based on samplings of companies employing approximately 25% of all employees in industry and commerce.
- Average monthly gross salary in '57 of all employees surveyed was $115.19. Salaries of females were 27% below this average, male salaries were 25% above. Since there is no salary differential between male and female employees, the earnings difference resulted from age, family status and experience factors.
- Male technical employees' salaries were 20% above average.
- Anthracite mining employees had the highest earnings last year—an average of $207.30 month. Lignite mining employees had the second-highest earnings.
- Bulk of male employees received between $119 and $166.60/-month.
- State-by-state breakdown (including West Berlin) shows male technical salaries averaged highest in Baden-Wurttemberg, $168.50; lowest in Rheinland-Pfalz, $147.08.
- Average salaries showed a modest increase during '57. Between February and November, male salaries increased an average of 3.7%, female salaries (in technical jobs), 3.1%. In-

8 Reasons Why
RISDON
MICRO-MIST* VALVES
Make New Aerosol Products Possible

*Patented

1. COMBINES THE DESIGN ADVANTAGES OF THE RISDON VALVE WITH THE FIRST AND FOREMOST MECHANICAL ATOMIZING ACTUATOR.
2. WIDE RANGE OF APPLICATION — Dispenses all 3-phase products including water-base formulations. Dispenses propellant emulsions or dispersions. Gives Super-spray performance on 2-phase and ultra-low pressure products. Applied to Glass, Metal and Plastic Containers.
3. WIDER CONE, FINER, DRIER SPRAY CLOUD — Softer, more evenly diffused spray.
4. LONGER LASTING CONTENTS — Especially advantageous in medicinals and perfumes.
5. SPRAY CONE CLEARS CONTAINER.
6. IMPROVES PRODUCTS BY MINIMIZING DILUTION EFFECTS—MICRO-MIST valve on two-phase products give dual-action atomization which permits reduction in propellant.
7. GREATER FORMULATION LATITUDE AND ECONOMY—MICRO-MIST'S double diffusion effect facilitates greater formula variations in quantity and type of propellant.
8. IMPROVED, ULTRA-LOW PRESSURE APPLICATIONS — Better performance over wider range of temperature and pressure.

Write for free RISDON Valve Booklets

THE RISDON MANUFACTURING CO.
Valve Division
Naugatuck, Conn.

RI-111

creases occurred largely in the third and fourth quarters.

• Average salaries jumped 40% between '51 and '57. Male salaries were up 44%, female salaries, 40% for the period. Salaries of males in commercial or administrative jobs increased 45.2%, 10% more than did salaries of males in technical jobs.

• Male technical employees in the chemical industry earned an average of $117.10/month in Nov. '51; an average of $158.27/month in Nov. '57, an increase of 35.2%.

• Between '51 and '57, manufacturing industries as a whole lagged behind the over-all average. The official summary attributed the lag to a faster rate of increase in low-paying lines, resulting in a narrowing of differentials between the various branches of the economy.

Action Against Labor

Two actions in labor-management relations outside the chemical industry stirred comment last week. One was a mutual-aid proposal to take some of the sting out of a strike; the other was a countermeasure that might apply where bargaining is done through an association of companies or on a company-wide basis. The latter is a feature of some labor contracts in chemical process firms.

To take some of the sting from a strike, six airlines last week agreed any extra profits made during a strike would be turned over to the airline that was struck.

At heart, the one-year agreement pledges that no airlines will benefit from the labor troubles of the others. The airlines involved are American Airlines, Pan American World Airways, Trans World Airlines, United Air Lines, Capital Airlines and Eastern Air Lines.

The agreement requires approval of the Civil Aeronautics Board, and even with that there may yet be litigation by affected unions or by the U.S. Justice Dept. on antitrust grounds.

Counteraction: In another example of joint management action last week, *The New York Times* newspaper announced that if a threatened strike against other newspapers in metropolitan New York City took place the *Times* would refuse to publish its own paper.

Basis of the *Times*' stand is its association with six other papers in the Publishers Assn. of New York City. The association bargains with newspaper labor unions in behalf of the seven members. Thus, the *Times* argues, a strike against any other newspaper that is a signatory to the labor contract between unions and the association is also a strike against the *Times*.

KEY CHANGES

W. E. Stack to president, Texas International Sulphur Co. (Houston).

Lee N. Haugen to vice-president, general manager and director, Cities Service Research and Development Co. (New York).

Philip A. Lawrence to vice-president and controller, Freeport Sulphur Co. (New York).

Lawrence S. Pricher to vice-president—finance, Foster Wheeler Corp.

L. S. Meckley to director, J. T. Baker Chemical Co. (Phillipsburg, N.J.).

Franklin G. Meeker to executive vice-president, Andrew Jergens Co. (Cincinnati).

L. B. Swan to vice-president, Dowell Division, Dow Chemical Co.

David A. Chernow to vice-president, Schenley Industries.

John E. Wood, III, to president; and **Karl J. Nelson, Harold J. Rose** and **A. Donald Green** to vice-presidents, all of Enjay Co. (New York).

Harold E. Rose to vice-president in charge of production, Newport Industries Co., division of Heyden Newport Chemical Corp. (New York).

CONSULTANTS

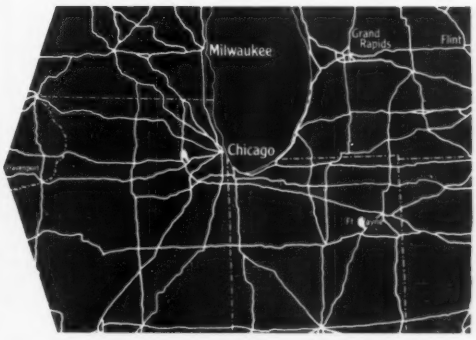
Harry Bennett and **Edward Rosendahl,** former president and executive vice-president respectively of Glyco Products Co., formed Bennett-Rosendahl, chemical business consultants (New York).

KUDOS

To **Frank K. Schoenfeld,** vice-president—research, B. F. Goodrich Co., the '59 Industrial Research Institute Medal.

ISOBUTYL ACETATE

SAVED LACQUER MANUFACTURERS OVER $39,500 IN THIS AREA LAST YEAR



Are you taking advantage of this economical solvent?

If you are presently using n-butyl acetate you can, by switching to isobutyl acetate, save 14¢ a gallon, or more than $1,100 on every 8,000 gallon tank car. A medium-boiling lacquer solvent, isobutyl acetate can be used interchangeably with n-butyl acetate in most applications. In nitrocellulose lacquers, its substitution produces no significant change in handling characteristics or in film properties.

By replacing methyl isobutyl ketone with isobutyl acetate, you save 5¢ a gallon or $400 on every 8,000 gallon tank car. What's more, use of isobutyl acetate helps you achieve improved blush resistance.

If you are using n-butyl acetate with sec-butyl acetate or n-propyl acetate, the average cost per gallon, using isobutyl acetate alone, will probably be less than any usable combination of these solvents. In addition, you free a storage tank for other purposes.

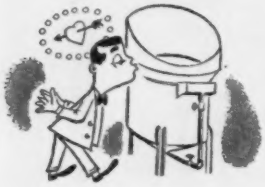
Ask your Eastman representative to show you how use of isobutyl acetate in your formulations can reduce solvent costs, or write to EASTMAN CHEMICAL PRODUCTS, INC., Chemicals Division, KINGSPORT, TENNESSEE.

Eastman
CHEMICAL PRODUCTS, INC.
KINGSPORT, TENNESSEE
subsidiary of EASTMAN KODAK COMPANY

SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tennessee; New York City; Framingham, Massachusetts; Cincinnati; Cleveland; Chicago; St. Louis; Houston. **West Coast: Wilson Meyer Co.,** San Francisco; Los Angeles; Portland; Salt Lake City; Seattle.

Using Salt Efficiently

by INTERNATIONAL SALT COMPANY, INC.



"Lixator" Improvements Make Brine Production More Efficient

Widely used throughout industry, Lixators are automatic rock-salt dissolvers developed exclusively by International Salt Company. They produce high-quality, fully saturated, self-filtered brine . . . and virtually eliminate the work and expense of storing, handling and using dry salt.

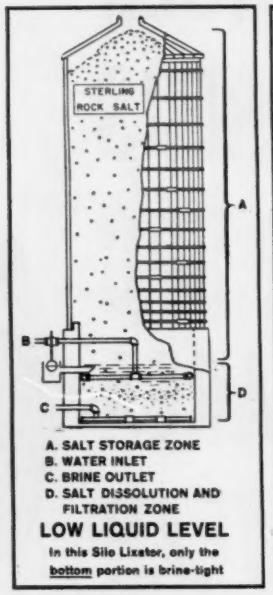
Excellent as this brine-making equipment is, International is constantly working to *improve* Lixator designs. From time to time, we also introduce special new Lixator attachments. Here are some improvements and attachments that can make production of Lixate brine more efficient and economical in your plant.

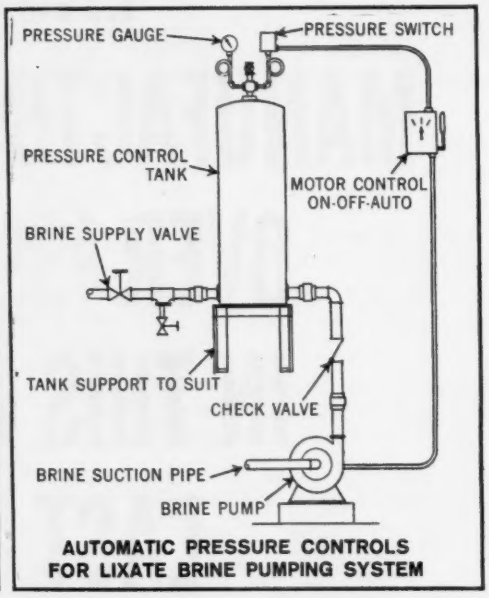
Low liquid level—a basic design feature that provides great savings by eliminating the need for deep salt-dissolving tanks. For example, it is possible to convert an old silo, dry-salt storage bin or unused room into a first-rate Storage or Silo Lixator simply by making the lowest portion into a waterproof salt-dissolving and brine-storage tank. The upper portion need *not* be waterproofed or made brine-tight.

A common method of waterproofing is to line the floor and bottom portion of the walls with concrete. Lixate brine is made in this lower tank portion, with dry salt occupying the space above the liquid level.

Electrode controls. To regulate the liquid level in a Lixator, electrode controls are often used. This is an excellent alternative to the standard float controls in many Lixator installations.

Two electrodes of different length are protected in a length of pipe, then immersed in the Lixator. Whenever the liquid level falls below the lower electrode, the electric circuit is broken, a relay opens to close a load contact, and the water valve is opened. When the liquid level rises to the higher electrode, the circuit is closed, and the relay closes to shut the valve. In this way the brine level is maintained between the desired limits in the Lixator—continuously and automatically.





Pressure controls . . . for brine systems. International has introduced the technique of automatically starting and stopping Lixate brine pumps by pressure switches. If a valve is opened anywhere in the brine distribution piping, brine flows and brine line pressure drops slightly. This, in turn, activates a switch, starting the pump, which withdraws brine from the Lixator. Everything is automatic. The operator only opens and closes a brine valve at the point of use.

Introduction of brine-metering devices. In cooperation with leading meter manufacturers, International has pioneered in the application of highly accurate and specialized meters for brine. Among the advantages of using these meters with Lixators is precise *salt* measurement, since every gallon of Lixate brine contains exactly 2.65 lbs. of salt. Also, automatic shut-off metering devices allow you to preset the amount of brine you want. Flow will stop when this amount has been measured out.

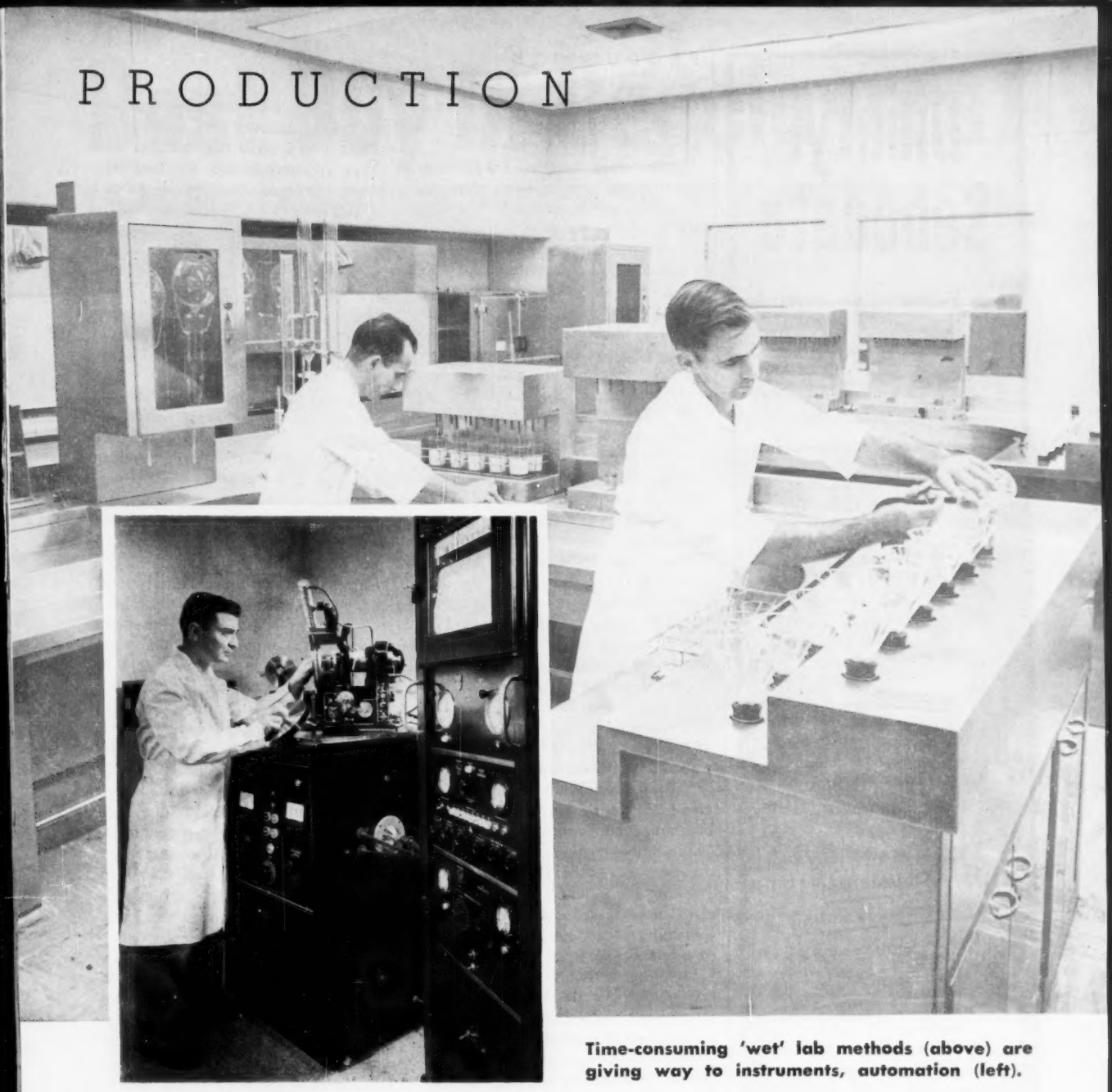
In many other ways, brine meters and other Lixator attachments can boost brine-making and brine-using efficiency. To find out how you can benefit from such devices, contact International. One of our experienced sales engineers will gladly explain about brine-density and brine-flow regulators, piping layouts, continuous brine-dilution devices, etc. He can also recommend the type and size of Sterling Salt best suited to your needs.

INTERNATIONAL SALT CO., SCRANTON, PA.

Sales Offices: Atlanta, Ga.; Chicago, Ill.; New Orleans, La.; Baltimore, Md.; Boston, Mass.; Detroit, Mich.; St. Louis, Mo.; Newark, N. J.; Buffalo, N. Y.; New York, N. Y.; Cincinnati, O.; Cleveland, O.; Philadelphia, Pa.; Pittsburgh, Pa.; Memphis, Tenn.; and Richmond, Va.

Service and research are the extras in **STERLING SALT**

PRODUCT OF INTERNATIONAL SALT COMPANY, INC.



Time-consuming 'wet' lab methods (above) are giving way to instruments, automation (left).

New Speed with Instruments at the Controls

With production again on the upswing, chemical companies are more closely concerned with plant bottlenecks. Due for increased attention is the control lab, where the debate about whether automation and instrument techniques can pay off is being raised anew.

The profitability of control lab modernization is underscored by Union Carbide Chemicals' experience at Institute and South Charleston, W. Va.

More than 25 times each day, mass spectrometer data from control samples is sped by Teletype to the company's computing laboratory across the Kanawha River. And, in as little as 15 minutes, complete sample analyses—tests for more than 30 possible constituents—are wired back to the plants. The procedure, now rounding out its first year of routine operation, cuts hours from analysis time. Savings: an estimated $30,000 over the older method using recording oscillograph, manual data reduction and hand calculation for the more than 10,000 samples that are processed yearly.

Examples such as Carbide's lead some firms to talk of automating plants to the point where control labs will be eliminated. But it's discounted by others who look at the control lab as the last place for new sweeping

Dibutyl Sebacate

Outstandingly Efficient

Plasticizer

odorless • tasteless • colorless

for use with

Vinyls
Cellulosics
Synthetic Rubbers
Polymers

to prepare

Films and Sheeting
Extruded Products
Solutions
Plastisols and Organosols
Molded Products

Outstanding Performance Rating

- Excellent low temperature properties
- F.D.A. accepted
- Excellent ease of incorporation
- Very good heat blocking resistance
- Very good lubricity
- Low rate of extraction

THE FLAME AND THE FLASK
Symbol of Quality

Ask for information about other Plasticizers available for specific applications.

The C.P. Hall Co.
CHEMICAL MANUFACTURERS
5245 W. 73rd St., Chicago 38, Illinois
NEWARK • AKRON • CHICAGO
MEMPHIS • LOS ANGELES

changes. Their reasons are often as complex as changes already in progress.

Overcoming Inertia: Traditionally, many plants have failed to place emphasis on the control lab. The routine nature of the work attracted few top-drawer chemists and technicians. Salaries were traditionally lower, advancement chances were poor, keeping qualified chemists was a problem.

It's a different story today. Where specs on sales contracts once covered only one or two impurities, they now include as many as 20 or 30. Old "wet" analytical techniques often aren't as accurate as instrument methods, or won't work at all. For example, infrared analysis for chloroform in carbon tetrachloride is the only method available, according to Stauffer.

New Type of Chemist: At one Mississippi River chemical plant, the chief chemist recalls that he needed only a few feet of bench space to run his control tests a few years ago, says that today each of his chemists needs 18 ft. of bench space for the instruments to run control tests.

The instrumentation is taking much of the routine out of control work, permitting chemists to run a greater variety of tests. But while instrumentation has brought a certain amount of glamor into control work, it has changed the type of man needed in the lab. As Al Smith of American Smelting and Refining points out, "We often need people who understand something about electronic circuitry, sometimes experts in spectrography."

Says Edgar Elkins of Dow's Pittsburg, Calif., general analytical laboratory, "In a sense automation means less frequent but more exact analysis. It means more careful calibration by the instrument user, a greater awareness of the possibilities of instrument errors."

Training becomes a greater problem, partly because few colleges have the facilities for instrument training. Companies must spend more time in training control chemists, or hire technicians who have received their instrument training with other firms.

Where's the Gain? Those opposed to control lab automation aver that the upsurge of instrumentation has not eliminated the control lab problem of routine-induced boredom. To alleviate it, some firms are training their chemists to run every analysis in the lab, rotate the assignments periodically. This practice cuts down on proficiency in a given test; but it is more than counterbalanced by less boredom, increased attention to the test.

Moreover, while instrumentation has increased the control lab cost per man, it has not brought a compensating reduction in the number of control chemists and technicians. But it has permitted more elaborate testing. As one head chemist puts it: "Thanks to the instruments, we are making an average of about four times as many tests today as 10 years ago—tests we would like to have run before but couldn't without instruments because of time and expense of doing them by hand."

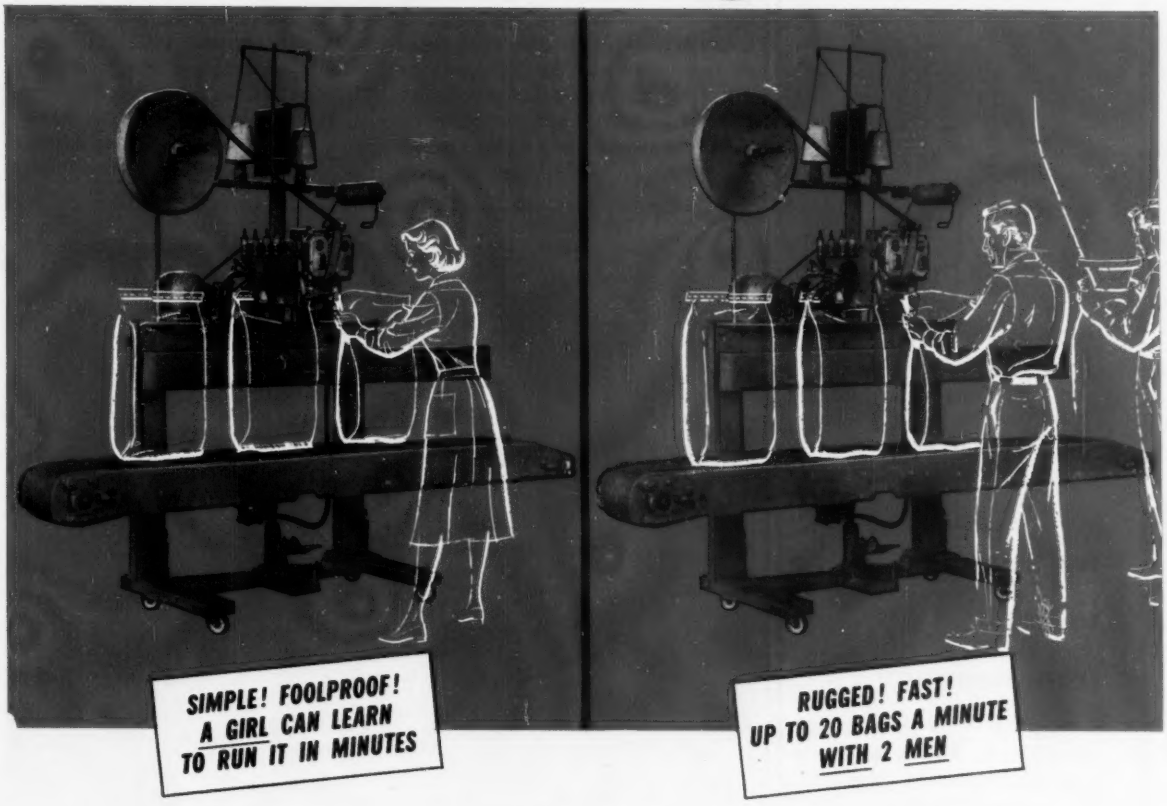
There's no denying that some companies have resisted instrumentation because of high instrument cost. Although companies such as Carbide are using mass spectrometers for control, a good many firms polled in the Midwest say a control lab instrument shouldn't cost more than $5,000—and mass spectrometer tags exceed this. At the El Segundo laboratory of Standard Oil Co. of California, automatic distillation equipment (cost: about $6,500) is now being evaluated to determine whether it produces savings enough to justify broader installation.

The chief chemist at one laboratory says: "You can automate anything—payout is the important thing. And when you start talking in terms of thousands instead of hundreds of dollars in initial investment, you often can't justify instruments."

Time Factor: Justification can often be made on the basis of savings in process time rather than in control lab time. Stauffer, for example, depends on carbon bisulfide analysis for carbon tetrachloride batch finishing. Ultraviolet techniques have cut analysis time from two hours to three minutes, increased production capacity.

But one chemist warns that automated control-lab equipment for some large continuous production units can't always be justified. His contention: automatic analyses will indicate in a hurry that something is wrong. But often it takes a couple of days to get the equipment back in balance. And during that time many analyses will be run that will be far from routine, will require the services of a chemist. "There'll always be a control lab, because there'll always be the 'odd-ball' sample, even on routine work," he

Best Buy in Bagclosers!



New Bagcloser Model 171

ONLY

$2650 F.O.B. Buffalo

COMPLETE WITH 9'9" SELF-LEVELING CONVEYOR, INSTALLATION and TRAINING FOR YOUR OPERATORS

Change your ideas about output and costs!
Precision-engineering brings you new Bagcloser 171.
The most efficiency and versatility for your production dollar.

Longest Conveyor. 9'9" Hydraulic "barber shop" height setting! Men stand erect. Plenty of elbow-room between fill spout and sewing head.

Automatic Stitcher Head controlled by bag passage. No inefficient one-leg hop; no tiring stoop or bend.

Fast—Up to 20 bags a minute with two men, 8 a minute with one, *steadily*, because it doesn't tire workers.

Most Economical and versatile machine for chemicals, feed, fertilizers, and consumer units in SOM paper bags. Caster-mounted, it works with all weigh machines and adjusts *to* spout height.

Handles Bags 14½" to 30" High—(Filled bags; distance from conveyor top to sewing line given).

Explosion-Safe and Trouble-Free—Pneumatic-clutch sewing head. Welded steel construction. Ball and roller bearings. Standard model wired to Nema 4 specs. Furnished to Nema 7 or 9 specs. at 1/3 optional cost of other machines.

INTERNATIONAL PAPER

BAGPAK DIVISION, N.Y.17, N.Y.

INTERNATIONAL PAPER COMPANY
220 East 42nd St., New York 17, N. Y.
Room 1404AM

Please send full data on Bagcloser 171.

Name_____

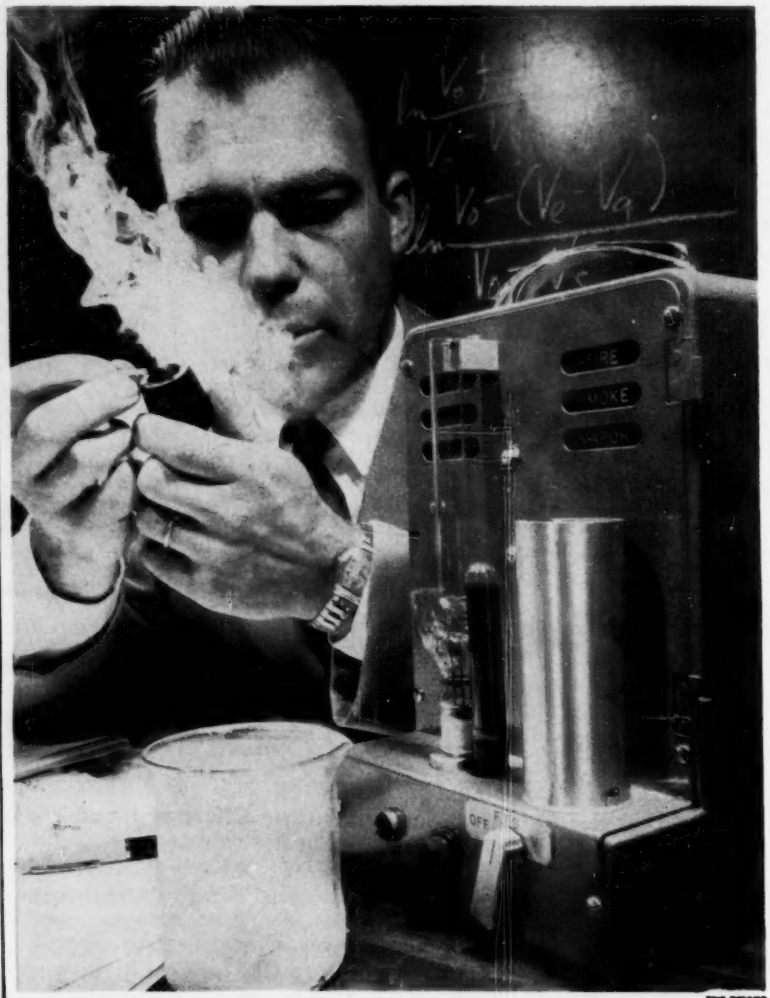
Firm_____

Address_____

says. Bearing this out, Carbide says that only about half the samples at its South Charleston and Institute control labs are sufficiently routine to justify programing on an IBM 650 Magnetic Drum Calculator so that mass spectrometer data can be Teletyped to the computing center for processing.

Time to Tell: Often, reduction of communication time—i.e., time to get the sample to the lab and analysis back to the plant—offers a way to save as much as speeding up analyses. Before Carbide set up its Teletype system at South Charleston, IBM cards were transported by messenger, and several hours were lost.

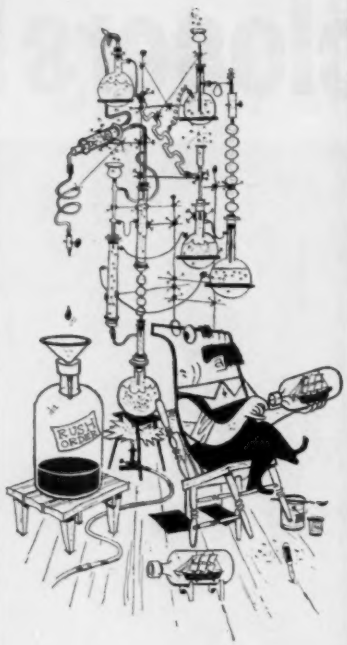
For many years companies have used pneumatic tubes to send samples from plant to lab. But this method can be expensive when long distances are involved. At some plants, produc-



BYE PHOTO

Safety Eye Spots Smoke and Flame

Even the pipe smoker gets a warning from an experimental detector of fire, smoke and vapors being developed for plant use by Minneapolis-Honeywell (Minneapolis). A 4-in. tube (*center of test device, above*) is the key to detection. Tube picks up ultraviolet light given off by flame. The instrument registers ultraviolet scattering caused by smoke or ultraviolet produced when vapors are drawn into the clear tube (*left on test device*) and heated. Indicator panel lights show the appropriate warning.



It's better to get it from Eastman

When you need a special organic in a quantity that strains your laboratory facilities or ties up your staff, try Eastman Organic Chemicals Department, *Distillation Products Industries,* Rochester 3, N. Y.

DPi

there are some 3700 Eastman Organic Chemicals for science and industry

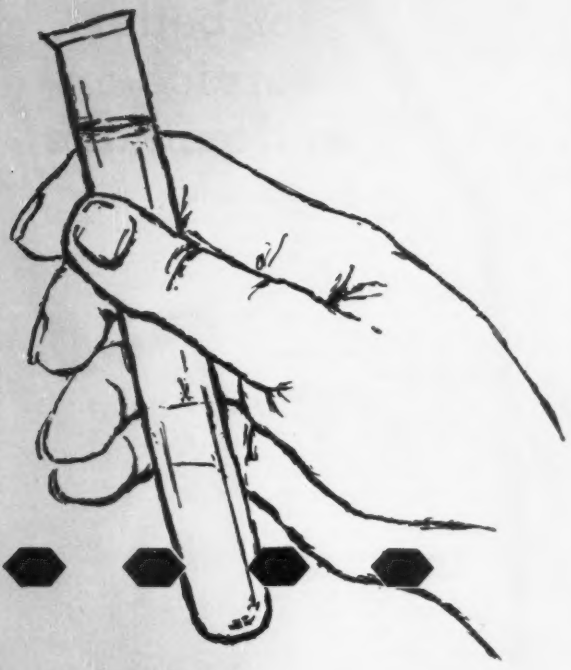
DISTILLATION PRODUCTS INDUSTRIES
is a division of
EASTMAN KODAK COMPANY

The emphasis is on

PURITY

and

UNIFORMITY



with

DELHI-TAYLOR

PETROCHEMICALS

BENZENE
TOLUENE
XYLENES

You can depend on Delhi-Taylor Petrochemicals for purity and uniformity to meet the highest industry standards.

Controlled Processing is the reason. Delhi-Taylor's modern petrochemical plant is equipped with the latest process control and instrumentation systems to assure you of highest quality . . . consistently.

You can depend on Delhi-Taylor for service, too. Barge, tank-car and tank truck shipments can be dispatched efficiently from our plant and bulk terminals to meet your processing schedules.

Send today for our new Specifications Folder.

DELHI TAYLOR

CHEMICAL DIVISION

DELHI-TAYLOR OIL CORPORATION

415 MADISON AVE. • NEW YORK 17, N. Y.

for better service on antioxidants

Koppers is basic in antioxidants: controls raw materials so that customers' demands can be met quickly and economically. And since there is *no captive usage*, you are assured of prompt service from Koppers on antioxidant orders.

dbpc® Antioxidant: a white, solid alkylated phenol useful as an antioxidant for gasolines, lubricating oils and greases, insulating oils, plastics, waxes and other non-food products.

Koppers BHT Antioxidant: a food-grade antioxidant with wide usage in feeds and edible fats and oils. Approved by Food and Drug Administration for human consumption.

Koppers Micro-Ground BHT: better dispersion of antioxidant is assured with Koppers Micro-Ground BHT, 50% of which passes through a 325 mesh screen. Used in feed preparations and other products where nutrients require protection.

Order your antioxidants from Koppers, leading basic producer. For details,

call your KOPPERS coal chemicals specialist

TAR PRODUCTS DIVISION
KOPPERS COMPANY, INC., PITTSBURGH 19, PA.

KOPPERS®
KOPPERS
COAL CHEMICALS

T5-5811A

PRODUCTION

tion units far from the main lab will have small control units of their own in which to run frequent and simple tests. Other plants use telaudographs, closed-circuit television.

Dependability-True Test: Much of the equipment for instrumentation and automation isn't brand new. But it takes time to adapt it for specific control uses. One chemist avers that "You can make instruments foolproof, but you just can't make them darned foolproof." Until then, a lot remains to be done both in improved instrumentation and in the old, standard "wet" chemical techniques.

EQUIPMENT

Hydrogen Purifier: Diffusion of commercial cylinder-hydrogen through palladium is the heart of a new hydrogen purifier developed by the chemical division of Engelhard Industries, Inc. (Newark, N.J.). The method is said to produce hydrogen of the highest purity obtainable by any known method. The purifier, now in production, has a flow rate of 20 cu.ft./hour, but larger models will be built to meet customer needs.

•

Tantalum-Lined Reactor: The largest commercial tantalum-lined reactor ever built is a new joint development of Pfaudler Co. (Rochester, N.Y.) and Haynes Stellite Co. (Kokomo, Ind.). The new 30-gal. reactor is designed to operate at 650 F and 500 psi. It is made of ⅝-in thick, Type 430 stainless steel lined with 30 mils of Haynes tantalum. Welding was carried out in a Pfaudler vacuum-purge welding unit to avoid oxidation of the tantalum liner.

•

PVC Expansion Joint: Walworth Co. (750 Third Ave., New York) has added an expansion joint to its line of rigid polyvinyl chloride pipe fittings. The new expansion joint compensates for length variations up to 4 in. on long straight runs of both normal- and high-impact PVC pipe. It is available in sizes from ½ to 4 in., with either threaded, flanged or socket-weld ends.

•

Boron Analyzer: Mine Safety Appliances Co. (Pittsburgh) has developed an analyzer that continuously measures the boron content of process streams within ±1% by volume.

GAYLORD POINTS OUT
MANY WAYS YOU CAN SAVE IN PACKAGING

Gaylord uses a sharp pencil to survey your *total* packaging operation—checks those hidden costs that are frequently more important than the price of the box.

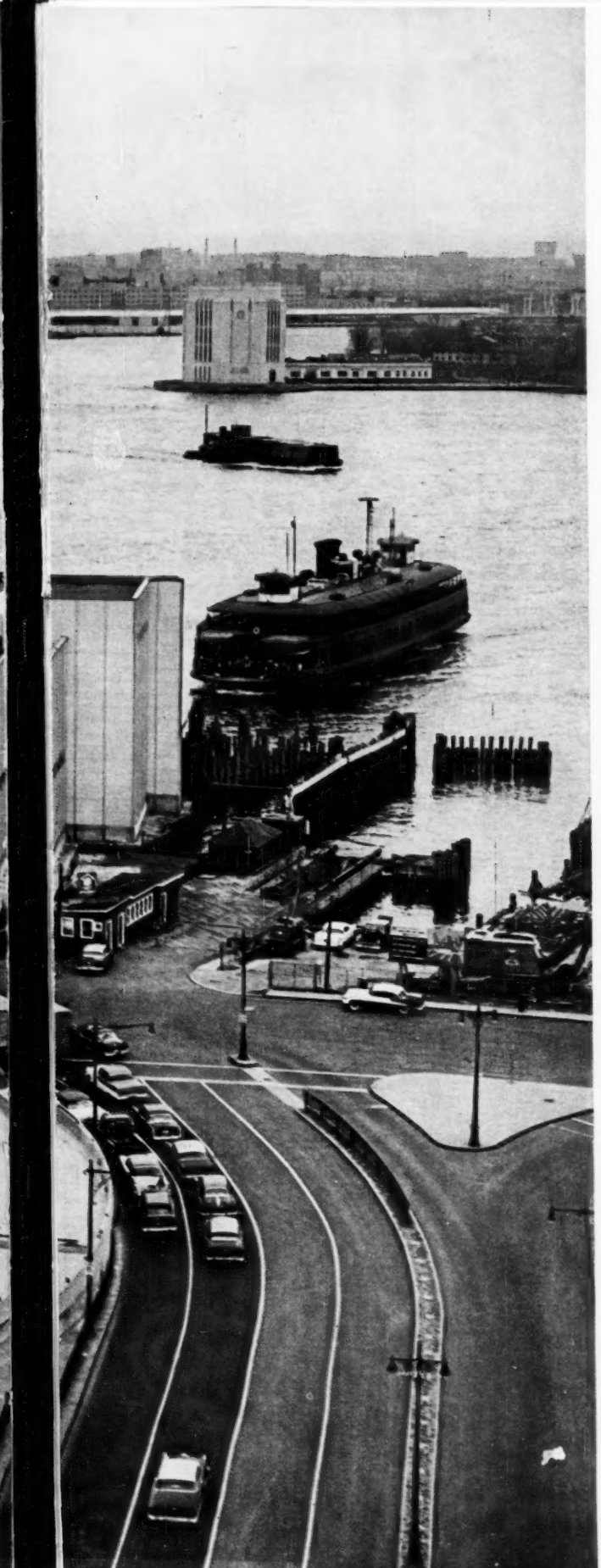
If you demand increased production, improved protection and important savings in corrugated packaging . . . call in your G-man. He'll help you erase any packaging errors, leave an indelible mark on the credit side of the ledger.

GAYLORD
CONTAINER CORPORATION

Gaylord Boxes

HEADQUARTERS, ST. LOUIS
PLANTS COAST TO COAST

DIVISION OF **Crown Zellerbach Corporation**



TITANOX®

TITANIUM DIOXIDE

covers the waterfront

Porcelain enamel, in a new hue of marine green, covers the curtain walls of New York's modern terminal for the Staten Island Ferry—world's greatest bargain in a boat ride. TITANOX-TG, supplying the great covering power of titanium dioxide, puts porcelain enamel in the film class of coatings—adding eye-appeal, imparting lightness of color, and contributing to lifetime quality.

What TITANOX-TG does for porcelain enamel, TITANOX white pigments do for organic finishes. For outdoor use, such as cars, boats, houses, buses, planes, TITANOX-RA-NC and TITANOX-RA-50 are the best choice. For indoor use such as appliances, cabinets, furniture, TITANOX-RA is usually preferred. Frequently a coating made with TITANOX-RA-50 can serve both indoors and out.

Regardless of what type of finish you make, you can make it better with the right white pigment from the full line of TITANOX titanium dioxides. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; offices and warehouses in principal cities.

6169

TITANIUM PIGMENT CORPORATION

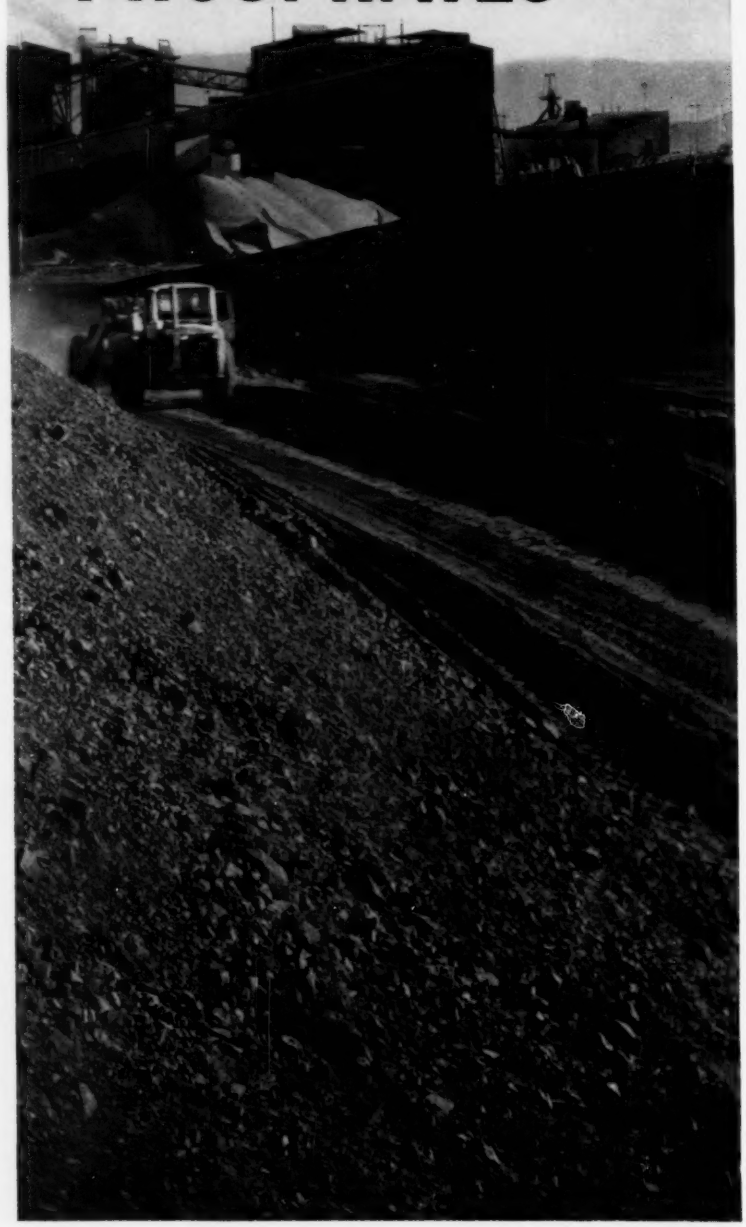
Subsidiary of National Lead Company

TITANOX

SALES AND DISTRIBUTION

You get the most from... Monsanto

LEADER in PHOSPHATES



BIGGEST in BENEFITS

***You get* WHAT YOU WANT ON TIME**

Monsanto offers you the broadest line of quality phosphates—shipped by people who are proud of their prompt service. These products are produced at several plants, protecting you against costly shipping delays.

***You get* LOWER HANDLING COSTS**

You can reduce unloading and handling costs with unitized loads and such features as color-coded bags—available at no charge.

***You get* PROFIT FROM NEW PRODUCTS**

Monsanto laboratories assure you a steady flow of new and improved chemicals and ideas to help you develop new, profitable products.

***You get* SAVINGS FROM TECHNICAL HELP**

Monsanto specialists, with experience in *your* field, are ready to "join your staff" to help you save money, gain extra profit.

***You get* MARKETING HELP AT NO COST**

As supplier to every major industry, Monsanto can give you *impartial* help with every phase of product planning, production and distribution.

Monsanto's Broad Phosphates Line Includes:

Sodium Phosphates	Ammonium Phosphates
Calcium Phosphates	Potassium Phosphates
Phosphoric Acid	Special Phosphorus Compounds

Bag, drum, tankcar or carload, Monsanto supplies phosphates in *any* quantity from a conveniently located plant, warehouse, or through a national network of service-minded distributors. Phone Monsanto:

Atlanta, Trinity 6-0777 • Boston, Dunkirk 7-5010
Chicago, Whitehall 4-6750 • Cincinnati, Woodburn 1-3677
Cleveland, Superior 1-3830 • Detroit, Broadway 3-7090
Houston, Jackson 6-2551 • Los Angeles, Raymond 3-2492
New York, Plaza 9-8200 • St. Louis, Wydown 3-1000
San Francisco, Yukon 6-6232

MONSANTO CHEMICAL COMPANY
Inorganic Chemicals Division
St. Louis 24, Mo.

YOUR "BIG BENEFIT" SOURCE FOR PHOSPHATES, DETERGENT RAW MATERIALS, SILICAS, ACIDS AND HEAVY CHEMICALS

OLD: Bag packaging has competition.

NEW: Major producers eye bulk distribution.

Bulk Distribution: Next for Dry Fertilizer?

Bulk distribution of dry solid fertilizers is more sharply in focus this week than ever before as the next major development in fertilizer marketing. The idea—which involves bulk movement of dry materials from producer to farmers' fields without the use of bags—is receiving powerful impetus from these developments:

• Wilson & Geo. Meyer & Co. (WGM), Western distributor for Stauffer Chemical and Western Phosphates, Inc., will expand its bulk program for triple superphosphate, single superphosphate and ammonium phosphate to include Idaho. Eventually, WGM will have dealers moving bulk in every state west of the Mississippi except Louisiana and Texas.

• A major chemical manufacturer, which declines to be identified, is planning a bulk program similar to WGM's for ammonium nitrate.

• Allied Chemical's Nitrogen Division is intensifying its program to encourage farm equipment manufacturers to develop equipment for handling bulk fertilizer. New equipment information, for example, is circulated widely to its field sales staff. Bulk distribution of dry materials has been stymied by lack of good equipment.

Already some farm equipment manufacturers are designing items for bulk handling of fertilizer. Butler Mfg. Co. (Kansas City, Mo.) is working on special fertilizer storage bins similar to those used for grain and feed.

• *Successful Farming*, national farming magazine, gave bulk-fertilizer distribution feature-article treatment in its November issue.

Fertilizer Shake-up: The advent of bulk handling would effect a revolution in dry-fertilizer distribution. Right now, about 85% of the 18 million tons of dry mixed types produced annually are sold in bags. Several fertilizer-ingredient suppliers estimate that over 50% of mixed-goods sales will be in bulk form within 10 years.

Bulk-handling proponents claim that costly bagging and bag handling (made worse by the advent of smaller bag sizes) will be eliminated. In this way, manufacturers could theoretically save upwards of $4/ton. But that figure must be offset by new equipment investment.

There's another gain in merchandising—bulk handling would make dry materials more effectively competitive with the convenience features of bulk-liquid distribution. Promotional programs also would change. Emphasis would very likely fall on custom service application, and product promotion might be reduced.

WGM Moves East: Such factors are the reasons why fertilizer chemical men are watching WGM with special interest. WGM's program, though by no means the first attempt at bulk movement, is undoubtedly the largest ever attempted.

Stauffer, Western and WGM initially underwrote a program to develop handling equipment suitable for local dealers. This resulted in an integrated line of small and large transfer conveyors, a portable railcar unloader, portable 25-ton storage unit, 1.5-ton-capacity "flo-bins" and a custom spreader for direct application to

NEED

ammonia
chlorine
caustic soda
sulfuric acid

SODA ASH

nitric acid
carbon dioxide
sodium nitrate
methanol

NOW?

Light and dense from shipping points in Michigan, Virginia and Louisiana when you . . .

CALL

OLIN MATHIESON

NOW!

Atlanta	MUrray 8-5916
Buffalo	Madison 3519
Charlotte	Edison 3-1175
Chicago	SUperior 7-7143
Cincinnati	Main 1-1983
Houston	CApitol 5-6511
New Orleans	Tulane 7491
New York	PLaza 3-0700
Pasadena	Ryan 1-7477
Philadelphia	RIttenhouse 6-2610
Providence	GAspee 1-2070
St. Louis	VOlunteer 3-5300
Montreal	REgent 1-2771

OLIN MATHIESON CHEMICAL CORPORATION
INDUSTRIAL CHEMICALS BALTIMORE 3, MD.
6314

the field. Manufacturer: Fabricated Metals Inc. (San Leandro, Calif.).

WGM is now encouraging dealers to join the bulk program. The company studies dealers' local needs, suggests an equipment-buying plan tailored to each dealer. Special economic studies are used to prove the payoff potential. Dealers usually invest $5,000—15,000 in equipment, figure the payout period at two-three years. WGM rounds out its program with a comprehensive promotional package: signs, stickers, literature and local advertising in farm papers.

The dealer realizes a saving by getting a bulk rather than a bag price. He may share savings with customers or add to profits. But his big advantage stems from offering a custom application service. Farmers generally welcome any operation that promises timesavings, professional fertilizer application or a reduction of labor requirements in peak seasons.

Stronger Dealers: Companies with a strong stake in ingredients or single nutrients, such as Allied and Stauffer, are avidly backing bulk handling. Besides definite cost advantages, they see bulk handling contributing to the development of more efficient dealers.

Only the larger and more progressive merchants will consider a bulk program; and should the concept catch on, marginal operators and nonservice-minded dealers will be forced out of business. Moreover, the application service gives a powerful sales tool. Dealer application means the land won't be underfertilized because of the farmer's time or labor shortage. It's hard to change farmer use patterns when material is shipped in bags. And bulk supporters feel that the rapid acceptance of custom bulk-liquid application will encourage similar demand for granular materials.

In the Middle: Some producers (e.g., Olin Mathieson, American Agricultural Chemical Co.) are now taking a neutral position. Davison Chemical is doing a limited amount of bulk distribution, has aided some dealers to develop bulk handling and custom services. Companies in this group are watching developments keenly but generally feel that the pros and cons are not sufficiently clear at this time or that the trend is not yet well enough advanced to warrant action.

Antibulk: Local fertilizer manufacturers and some national producers view the dry distribution in bulk with marked misgivings. Mainly they fear that volume handling will encourage the spread of blender-operators. Blenders mix granular stocks of nitrogen, phosphorus and potash materials together physically. Mixers, however, react nutrient components to produce a product in which the materials are chemically linked.

Another fear is that a new type of spreader, which has separate compartments for three types of material and applies all three simultaneously to the field, eliminates need for mixed-fertilizer producers. Even companies encouraging bulk distribution of mixed materials make it clear that they are not encouraging blend or novel fertilizer-spreader operations.

Control of the nutrient content of bulk materials is another objection to bulk distribution. Volume delivery, some feel, would open the door to operators who cheat on specifications. State control systems are now largely geared to bagged materials.

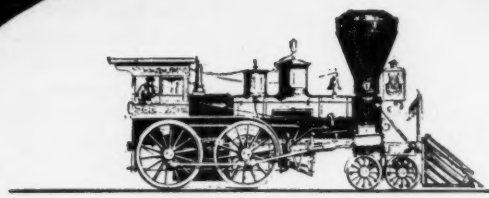
Opponents of bulk distribution point to the heavy capital expenditures required of dealers to get into bulk programs. Bad weather may prevent heavy trucks from working on soggy fields. And since farmers concentrate their buying in short seasons, bulk dealers are likely to find their equipment sorely taxed for a few weeks, idle the rest of the year.

Advocates of bulk handling counter such reasoning with two principal arguments:

- Blenders of dry bulk, possibly offering an inferior product in some cases, are selling successfully because of the convenience and service features. Unless mixed-goods producers offer similar service, they will lose out.
- Advantages gained from investment in equipment are more than worth the cost.

Key to Growth: Both advocates and opponents agree that bulk distribution will grow. Technical problems relating to granulation and flowability have largely been solved. Lack of equipment—the main hurdle now—is the key to future growth. Much equipment now made is either too costly, too small or lacks good control of flow rates.

Most solid nutrient is applied with low-capacity attachments on row crop planters or small grain drills. Allied

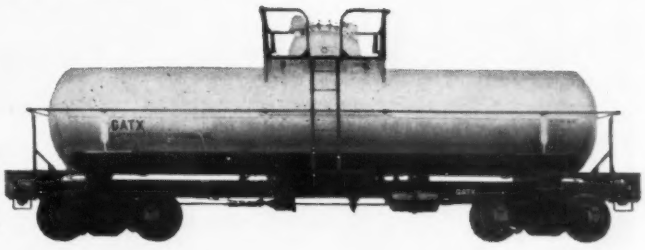


museum pieces are for museums

In 1869, this locomotive was the last word. Today, it is a museum piece.

Not so, your product. If it were, you'd be in the museum business or out of business entirely.

But, if you ship a liquid in bulk, what about the package—the car in which your product goes to market?



Packages are for selling—whether they are on a shelf or on a railway siding. Your product deserves the best package you can find for it.

If your product is a liquid shipped in bulk, GATX builds or can build just the package for it—a tank car that protects your shipment and promotes your good name.

GATX operates the cars for you, knows where they are, keeps them on the move and maintains a nationwide network of shops for their service and upkeep.

No capital investment . . . no operating worries . . . when you ship GATX!

GATX GENERAL AMERICAN TRADE MARK

GENERAL AMERICAN TRANSPORTATION CORPORATION
135 South La Salle Street
Chicago 90, Illinois
Offices in principal cities

CHEMICAL PLANT DESIGN by VITRO

HIGHER PROFITS, LONGER LIFE

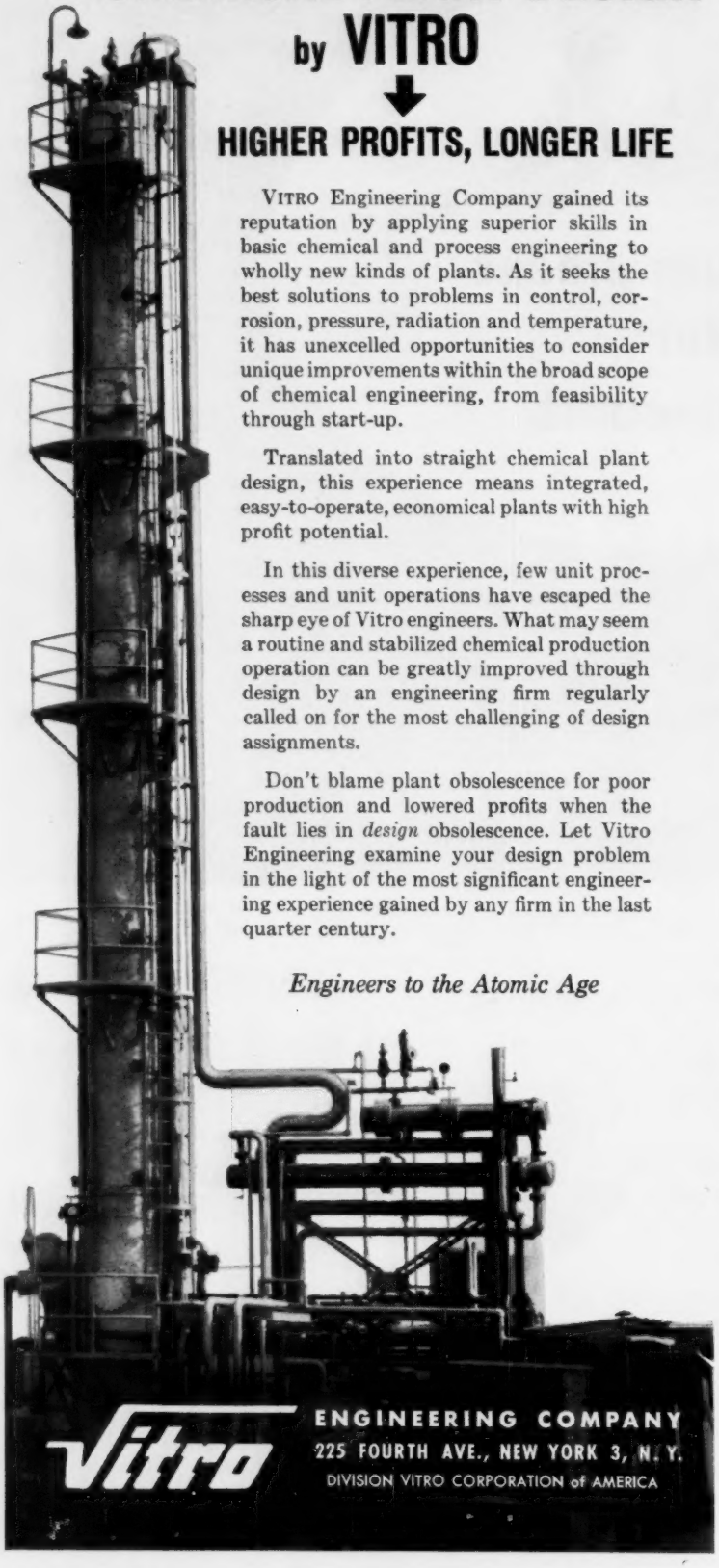
VITRO Engineering Company gained its reputation by applying superior skills in basic chemical and process engineering to wholly new kinds of plants. As it seeks the best solutions to problems in control, corrosion, pressure, radiation and temperature, it has unexcelled opportunities to consider unique improvements within the broad scope of chemical engineering, from feasibility through start-up.

Translated into straight chemical plant design, this experience means integrated, easy-to-operate, economical plants with high profit potential.

In this diverse experience, few unit processes and unit operations have escaped the sharp eye of Vitro engineers. What may seem a routine and stabilized chemical production operation can be greatly improved through design by an engineering firm regularly called on for the most challenging of design assignments.

Don't blame plant obsolescence for poor production and lowered profits when the fault lies in *design* obsolescence. Let Vitro Engineering examine your design problem in the light of the most significant engineering experience gained by any firm in the last quarter century.

Engineers to the Atomic Age



Vitro ENGINEERING COMPANY
225 FOURTH AVE., NEW YORK 3, N. Y.
DIVISION VITRO CORPORATION of AMERICA

SALES

Chemical sees a special need for equipment to transport solids over farm fields and to mechanically load farmer-owned applicators. Hoppers on field equipment must be enlarged, or it may be possible to adapt grain and feed equipment to fertilizers. And many believe that dealers may need some type of financial assistance to get into bulk handling.

Such measures would go a long way in speeding the growth of bulk fertilization. Despite it's drawbacks, bulk-fertilizer distribution seems certain to make deep inroads in the next decade. Cheaper handling, custom service, faster application and stronger, more competitive dealers will make a sales pitch that's tough to beat.

Data Code Debuts

Standardized chemical abbreviations for data-processing systems are being distributed this week by the Manufacturing Chemists' Assn. The proposed code holds promise of solving the problems caused by a lack of uniformity in abbreviations used by various chemical companies.

Maximum efficiency of the data-processing machinery depends on abbreviations. Long descriptions could be used as the alternative to abbreviations but they would entail longer machine running times and hence higher costs ($30-200/hour). But unstandardized abbreviations have led to costly mistakes when clerical personnel confused similar words, such as sulfate and sulfite (*CW, Aug. 24, '57, p. 69*).

MCA's proposed abbreviations are based on phonetics, common trade usage and chemical symbols. The letter "R" is proposed as an abbreviation for the term "reagent"—one of the key problem words in determining the list. The abbreviations cover chemical elements, radicals, physical measurements, societies, containers and weights.

In issuing the listing,* MCA also suggests five general rules:

- Use upper-case type exclusively.
- Eliminate periods after abbreviations of associations and societies.
- Use only two digits for weight and capacity abbreviations.
- Avoid abbreviating chemical names when a choice between words is available. Ideally, the phrase "potassium nitrate, fine crystals, reagent"

*Available from MCA at 20¢/copy.

FIRST... UNDER PRESSURE

Pressure packaging is pushing many different kinds of products to the top in today's tougher sales race . . . with the help of Crown. Crown made the first aerosol package . . . has produced more than any other manufacturer . . . is the only source of both seamless and fabricated aerosol containers. Crown research, experience and facilities are unexcelled in the aerosol packaging field. Let us show you how to put your product under pressure . . . profitably.

for cans · closures · crowns · machinery

CROWN

CROWN CORK & SEAL COMPANY, INC.
9300 Ashton Road, Philadelphia 36, Pa.

Excerpts From The Chemical Hall of FAME

FATTY ACIDS
Caprylic
Eldhyco®
Capric
Lauric
Coconut
Palmitic
Myristic

METHYL ESTERS
Capryiate
Eldo 18®
Caprate
Laurate
Coconate
Myristate
Caproate
Palmitate

T.M. Reg.

EDUARD BUCHNER

1860–1917

• Eduard Buchner's epoch-making research in the fundamentals of fermentation, which established the fact that alcoholic fermentation could take place without the presence of yeast cells, earned him the Nobel Prize in 1907.

• By 1907, Foremost's El Dorado Division was already a prize supplier of coconut oil and its by-products to American industry. El Dorado is still foremost in the purity and uniformity of its products.

For Example:
ELDO CAPRIC ACID

94-97% pure. (Purest Capric Acid commercially produced.) Readily available at an attractive price. Eldo's high standards give you a better, more uniform end product.

For samples and specifications, write Dept. W

FOREMOST FOOD AND CHEMICAL COMPANY

EL DORADO DIVISION

P. O. Box 599, Oakland 4, California

ATLANTA Geo. E. Missbach & Co.
BOSTON N. S. Wilson & Sons
CHICAGO M. B. Sweet Co.
CINCINNATI Howard Dock
CLEVELAND F. W. Kamin Co.
DETROIT Harry Holland & Son, Inc.
HOUSTON Joe Coulson Co.
KANSAS CITY Vulcan Sales Co.
MINNEAPOLIS M. H. Baker Co.
NEW ORLEANS Breffeilh & Sheahan Co.
NEW YORK H. Reisman Co.
OAKLAND Foremost Food & Chemical Co.
OKLAHOMA CITY Rullman Brothers
ST. LOUIS Harry A. Baumstark & Co.

SALES

should be shortened to POTASSIUM NITRATE F XTL R.

• Group component parts of a single word together, without a space, e.g., MONOBRAT for monobromate.

MCA's abbreviations are recommendations only; companies themselves will determine the extent to which they might adopt them.

Gearing for Growth

Encouraged by the successful introduction of several new product lines, National Aluminate Co. (Chicago) is this week mapping a whopping 20% increase of its 250-man sales force. Nalco figures the additional salesmen can help bring a 12-15% expansion in Nalco's sales, now $36.5 million/-year. Goal: 300 men by mid-'59.

The move is also designed as recession insurance, in the event the business recovery proves short-lived. "Business downturns," Nalco President Joseph Holmes told *CW*, "have taught us that the one sure way to pull out is by selling hard."

Nalco is currently placing great emphasis on research and development. These activities now account for 16% of the firm's total manpower and $1.5 million of its total budget. The program's payoff—new product lines in cyclic tertiary amines, vinyl dialysis membranes and natural-synthetic-type cracking catalysts—is directly responsible for the sales force expansion.

But new salesmen, as every sales manager knows, aren't easy to come by. And because Nalco's ratio of applicants to hirings is well over 100 to 1, the staff increase won't be made overnight.

DATA DIGEST

• **Coatings:** A recently released 36-page brochure discusses coatings, both clear and colored, for use on metal, plastics, glass and wood. Data is given on standard colors, including metallics, as is information relating to applications of special interest to those who use or specify coatings. Bee Chemical Co. (Chicago).

• **Plasticizers:** A comprehensive brochure dealing with plasticizers now available includes specifications, typical properties, performance data, as well as general discussion on numerous plasticizers. Rubber Corp. of America (Hicksville, N.Y.).

CHEMICALS OUTLOOK

November, 1958

This news bulletin about Wyandotte Chemicals services, products, and their applications, is published to help keep you posted. Perhaps you will want to route these and subsequent facts to interested members of your organization. Additional information and trial quantities of Wyandotte products are available upon request . . . may we serve you?

GEISMAR CHLORINE–CAUSTIC FACILITY READY EARLY 1959

Moving on schedule and ready for production early in 1959 is the chlorine–caustic plant at Geismar Works, Wyandotte's multi–million dollar installation immediately south of Baton Rouge, Louisiana. Brine–purification facilities, all major operating buildings, and dock construction have been completed. Brine wells are now being drilled. The large plant has a designed daily capacity of 300 tons of chlorine and 330 tons of caustic soda.

On stream since March, 1958, is the ethylene oxide facility at Geismar. With an annual capacity of 60 million pounds, it establishes Wyandotte as a merchant producer of ethylene oxide . . . and strengthens our position as a manufacturer of many structurally unique polyoxyalkylene glycol polymers.

GEISMAR EASILY ACCESSIBLE BY RAIL, HIGHWAY, WATER TRANSPORTATION

Geismar is served by the Illinois Central Railroad, whose main line from New Orleans to Chicago passes directly through the plant site. Direct connections with other major rail lines are provided at New Orleans, Baton Rouge, and Memphis. Truck transportation is available through Geismar's ready access to major highways. Deep–water channels, barge canals, and rivers permit service to foreign ports . . . and inland water transportation provides access to points throughout the Midwest and as far north as Minneapolis and St. Paul.

GOOD NEWS FOR FISH HATCHERIES (AND FISHERMEN!)

A study of streams and lakes has shown the influence of geological formations on the ability of drainage waters to support fish life. Because the presence of lime facilitates the release of nutrients to be built into plants, it was found that hard waters from sedimentary areas are up to 50 times more productive than the soft waters of the igneous rock areas—the former yielding an adequate supply of carbonate.

Bacteria count appears to be related to calcium and carbonate supplies in the water and, since bacteria are basic to the food cycle in restoring nutrient salts to water, they may, too, be related to productivity. If you are connected with fish hatcheries, indications are that by sowing Purecal*, Wyandotte's calcium carbonate, fish yield per acre will be increased.

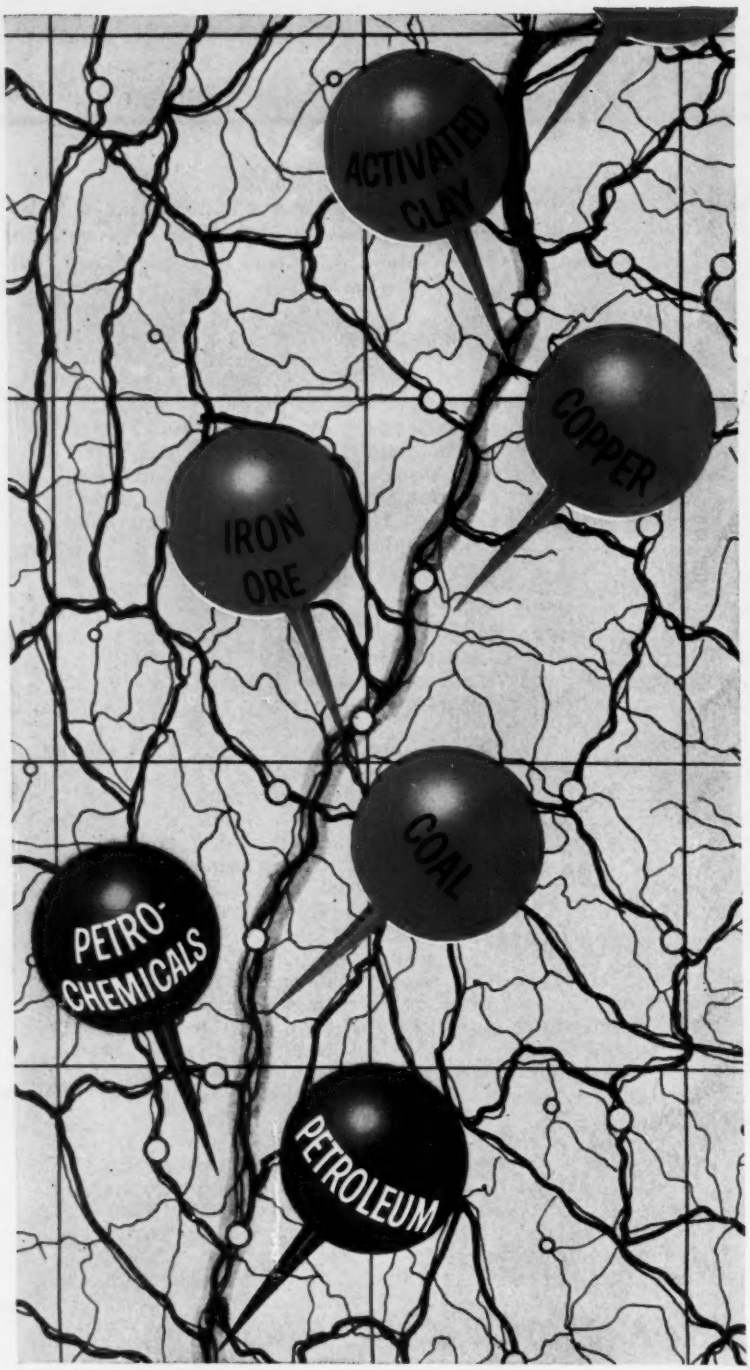
For further details, write us direct on your company letterhead. Address inquiries to Department CO for prompt attention.

*REG. U.S. PAT. OFF.

Wyandotte CHEMICALS

WYANDOTTE CHEMICALS CORPORATION
WYANDOTTE, MICHIGAN • OFFICES IN PRINCIPAL CITIES

SODA ASH • CAUSTIC SODA • BICARBONATE OF SODA • CALCIUM CARBONATE • CALCIUM CHLORIDE • CHLORINE • MURIATIC ACID • HYDROGEN • DRY ICE
GLYCOLS • SYNTHETIC DETERGENTS (anionic and nonionic) • SODIUM CMC • ETHYLENE OXIDE • ETHYLENE DICHLORIDE • POLYETHYLENE GLYCOL • PROPYLENE OXIDE
PROPYLENE DICHLORIDE • POLYPROPYLENE GLYCOL • DICHLORODIMETHYLHYDANTOIN • CHLORINATED SOLVENTS • OTHER ORGANIC AND INORGANIC CHEMICALS



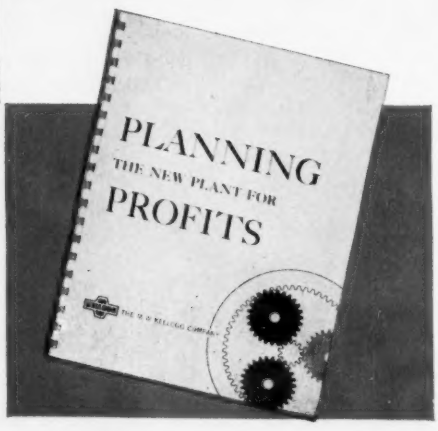
Can Kellogg Give YOU a Lift?

The M. W. Kellogg Company travels far and wide today into the area of engineering and building process plants. Its hydrocarbon route, still the way to successful petrochemical plants the world over, now branches off to numerous other points of interest to management in *many* industries.

One turn along the way was to the successful synthesis of chemicals from coal—a major South African project and a Kellogg responsibility. Others still further afield, have led to the current U.S. engineering and erection by Kellogg of such diverse facilities as those for the refining of copper . . . the processing of iron ore . . . and the manufacture of activated clay.

If you are planning an excursion to any area where continuous processing is required, most likely Kellogg's broad engineering, procurement, and construction experience can get you there and into production faster, safer, and at less cost.

Kellogg's recent book, "Planning the New Plant for Profits," is fast becoming management's modern guide to the economics of new plant investment. It is available without charge to all who participate in planning or executing capital expenditures. For your copy, please fill out the coupon and attach to your business card or company letterhead.



The M. W. Kellogg Company *(A Subsidiary of Pullman Incorporated)*
711 Third Avenue, New York 17, N. Y.

Send, without charge or obligation, copy of "Planning the New Plant for Profits."

Name_____ Title_____

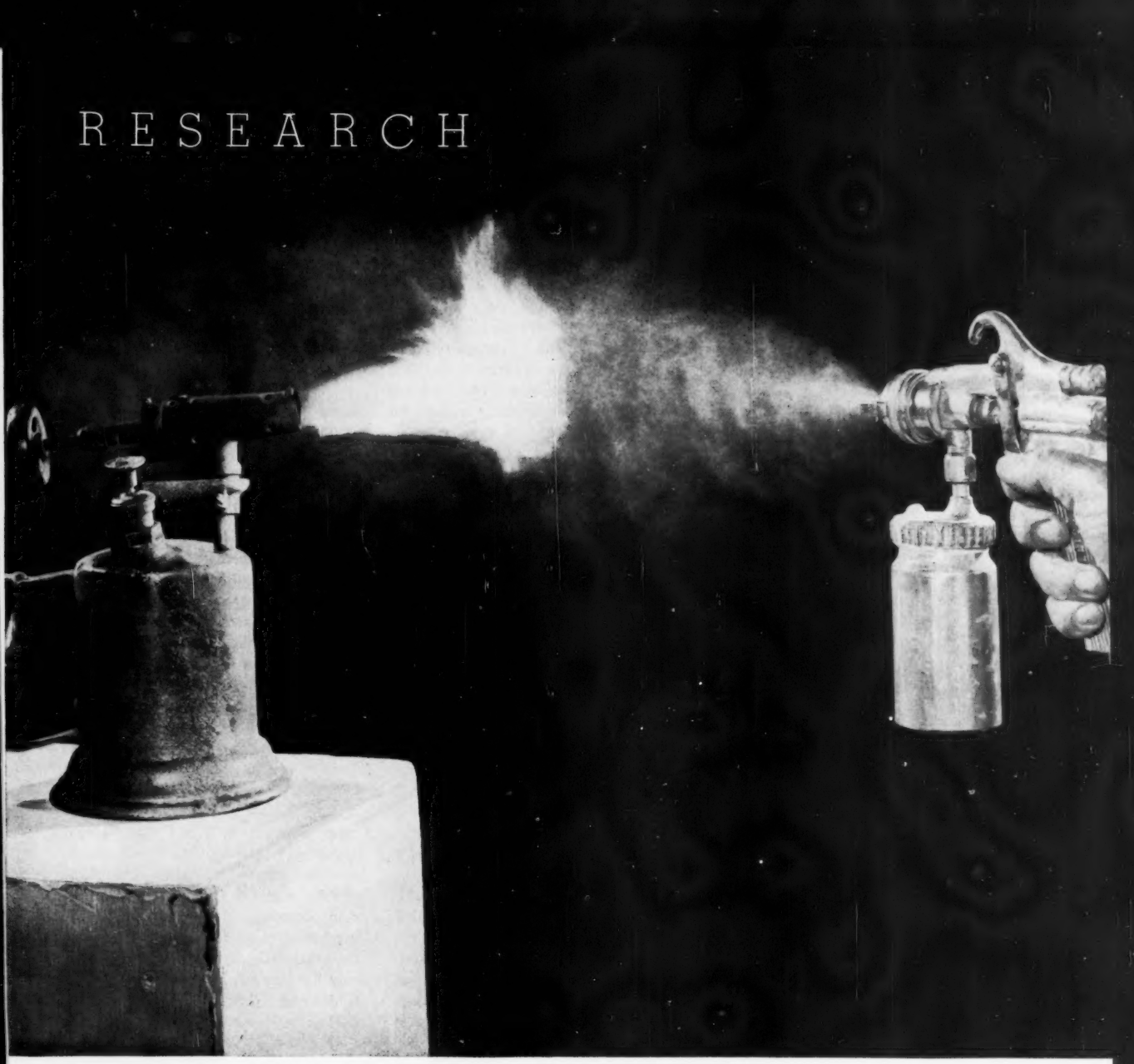
Company_____

Address_____

CW 11/15

KELLOGG

The Canadian Kellogg Co. Ltd., Toronto • Kellogg International Corp., London
Kellogg Pan American Corp., New York • Societe Kellogg, Paris • Companhia
Kellogg Brasileira, Rio de Janeiro • Compania Kellogg de Venezuela, Caracas



Paint formulated with ADM's Arolon-1000 does not burn in blowtorch flame.

Flame Test Launches New Paint Bases

Paint researchers are this week busily evaluating two new resins for water-based paints. They are Amoco's alkyd resin based on trimellitic anhydride and Archer-Daniels-Midland's Arolon-1000, and they share one big advantage—neither needs an organic solvent. If either lives up to manufacturer's initial reports, it's a good bet to share substantially in the $125-million water-based paint market.

Both, moreover, may help expand that market. Unlike the water-based paints made with butadiene-styrene, polyvinyl acetate or acrylic emulsions, which have moved far as home interior finishes, the new resins are primarily used in baked industrial finishes. In this application, the big advantage of their water solubility lies in their fire resistance, both in storage and application; in addition, they save in solvent costs.

ADM won't identify its Arolon-1000, which is already in production, beyond that it is an organic complex. However, it says it's not an alkyd, acrylic, melamine-modified alkyd—"is an entirely different organic complex than any conventional resin material currently in use (for paints)." But paint resin experts tell *CW* it is "probably an aqueous polyester-type resin."

Amoco's zero-oil alkyd paint resins are based on trimellitic anhydride (the anhydride of 1,2,4-benzene tricarboxylic acid).

Amoco does not formulate and sell paint—it hopes to sell its new anhydride to emulsion makers and paint manufacturers. It is offering to potential customers paint formulations it

Borax

Boric Acid

	GRANULAR	POWDERED	CRYSTAL	IMPALPABLE
TECHNICAL	●	●	●	●
U.S.P.	●	●		●
SPECIAL QUALITY (CP+)	●	●		

Ammonium Biborate
Ammonium Pentaborate
Anhydrous Borax
Anhydrous Boric Acid
FR-28®
Borax 5 Mol
Polybor®
Potassium Tetraborate
Potassium Pentaborate
Sodium Metaborate
Sodium Pentaborate
"Rasorite"® Anhydrous Sodium Borate Concentrates
"Rasorite"® Sodium Borate Concentrates

Information, samples and bulletins sent promptly on request. Direct inquiry to office nearest you.

United States Borax & Chemical Corporation
PACIFIC COAST BORAX COMPANY DIVISION

50 Rockefeller Plaza, New York 20, N. Y.
630 Shatto Place, Los Angeles 5, California

has developed: (1) trimellitic anhydride, diethylene glycol, isobutyl alcohol and 1,3-butylene glycol; (2) the anhydride with adipic acid and propylene glycol.

Amoco points out that trimellitic anhydride is still in the development stage; it's available only in small quantities from the firm's Whiting, Ind., pilot plant. George Reiger, Amoco's director of market research and development, says, "The firm will make a decision regarding a plant (to produce the anhydride) in six months, hopes to have construction started within 18 months."

Property Pluses: Both resins are said to form "true" water solutions rather than the dispersions or emulsions found in other bases for water paints. Both also claim excellent adhesion, high gloss, flexibility, film integrity. A good gloss has been virtually impossible to come by in water-based paints, according to Francis Scofield, director of the scientific section of the National Paint, Varnish and Lacquer Assn. (Washington, D. C.). He adds, "Good adhesion also has been elusive, especially in coating metals, other smooth surfaces." Both Amoco and ADM, however, are hopeful of a market in the automobile, initially perhaps as interior finishes.

Amoco's anhydride resin may be one up on Arolon-1000 in that it also may be formulated with oil (e.g., 90% soybean oil) to form a water-system paint for air-drying applications (although Amoco is "aiming primarily at industrial baked finish jobs"). Arolon-1000 is usable only in finishes that will be baked onto the surfaces.

Economics Note: Amoco's anhydride, not yet in commercial production, is selling for $3/lb. in experimental quantities. But Reiger says his firm could sell it for 25-35¢/lb., once in production. Arolon-1000 is priced at 41.25¢/lb. in carload lots for a 45% solids in water solution (about 95¢/lb. on total solids basis).

These prices are comparable to those of other currently available nonlatex bases for water paints—American Cyanamid's Cyaqua alkyd emulsion, at approximately 22¢/lb. for a 48% solids in water solution (approximately 46¢/lb. on total solids basis), and Reichhold Chemicals' Synthemul alkyd resin, at 51¢/lb. for total solids.

These two firms are presently selling alkyd emulsions for water-based paints on the open market.

Others Researching: Reichhold Chemicals' John Penniman, manager of its emulsion division, says the company has offered Synthemul resins for use in water-based paints for two years. It yields coatings with high chipping resistance, gloss, hardness and good salt-spray resistance (but adhesion could be improved), he says. The firm won't tip its research hand right now, but it's convinced that "a real comer will be a combination of water-soluble materials with emulsions (PVAc, acrylics, etc.)." Cyaqua emulsion, according to Robson Head, marketing manager of the plastics and resins division of Cyanamid, "makes a real flat paint for home use, is being sold as such."

Heyden Newport's Bill Kraft reports

Amoco's Richard Van Strien (left), Ben Bolton bend metal panel to demonstrate adhesion, flexibility of trimellitic-based paint resin.

OXYGEN

the exact amount you need

You get it instantly—from LINDE

You have no worries whatever about an ample, dependable supply of oxygen for your process when you buy oxygen from LINDE. Full responsibility for production, transportation, and storage at your plant is assumed by LINDE.

Tonnage oxygen. Large amounts of liquid or gaseous oxygen can be supplied from a full-scale oxygen production unit—built and maintained by LINDE—directly to your plant. You pay only for the oxygen you use, at a price guaranteed by LINDE, with no capital investment on your part.

For varying needs. A DRIOX oxygen storage unit provides a continuous flow of liquid oxygen, or converts it automatically to gas. Constant pressure is maintained, even while the unit is being replenished. Or you can get LINDE oxygen in a single flask, a cylinder, or banks of cylinders.

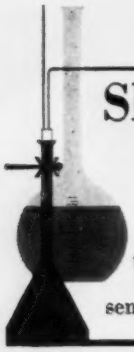
Take advantage of LINDE's 50 years of development and service in the industrial gas field! Write, phone, or wire Dept. L-112, LINDE COMPANY, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N. Y. Offices in other principal cities. *In Canada:* Linde Company, Division of Union Carbide Canada Limited.

When you need Oxygen—call LINDE!

Linde TRADE-MARK

UNION CARBIDE

The terms "Linde," "Driox," and "Union Carbide" are registered trade-marks of Union Carbide Corporation.



LAB SERVICE

information available

complete information on the following services will be sent to you on request

- General
- Nutritional Food Evaluation
- Vitamin D Assay
- Chemistry
- Bacteriology
- Feed Industry Services
- Food Technology
- Insecticide Testing
- Toxicology
- Vitamin Assays

Color brochure and price schedule available on request

WISCONSIN ALUMNI RESEARCH FOUNDATION

WISCONSIN ALUMNI RESEARCH FOUNDATION
506 North Walnut St.
Madison, Wis.

Have You Discovered WOLLASTONITE

useful and economical in paints • ceramics • plastics

and perhaps your product...

Properties:
- 97.8% pure calcium silicate wholly fibrous (see cut—500X mag.)
- bright, clean, low refractive index (1.63)
- low oil (or vehicle) absorption
- no volatile constituents (or water of crystallization)
- good electrical properties

For free samples and facts, write:

CABOT®

GODFREY L. CABOT, INC.
77 Franklin Street, Boston 10, Mass.

I am interested in Wollastonite for

_____
(YOUR FIELD OR INDUSTRY HERE)

NAME_____TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ZONE_____STATE_____

RESEARCH

HN too is researching alkyd resin formulations, in the same way as Amoco. It also sells paint chemicals to emulsion manufacturers.

M. H. Bigelow, vice-president of Allied Chemical Co., claims his company is engaged in "an intensive research program to find alkyds that are usable in water-based paints"—but will say no more.

Rinshed Mason Co. (Cleveland) echoes Bigelow's statement, says it now has in the lab an alkyd that looks promising.

Others in the field, including Rohm & Haas, Shawinigan, Celanese, manufacture other types of emulsions (polyvinyl chloride, acrylics, etc.), but they state that they have little or no interest in developing alkyds at this time.

But with interest as high as it is, research findings should continue to pop, and lead to greater competition for a bigger slice of the growing water-based paint market.

REPORTS

• Research results by the U.S. Dept. of Agriculture on the use of protective dusts and sprays to combat rice weevil infestation are reported in "Treatments for the Protection of Stored Southern-Grown Corn from Rice Weevil Attacks—Exploratory Tests." The tests were made between 1951-58, included use of lindane, malathion, methoxychlor, synergized pyrethrum, and ryania. The report is available (free) from the Office of Information, U.S. Dept. of Agriculture, Washington 25, D.C.

•

These reports are available from the Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C.

• A guide to the technical aspects of isotope research and utilization in medicine, industry and agriculture, called "Isotopes: A Bibliography of United States Research and Application 1955-1957," has been released by AEC. Order TID-3076. Price: $2.25.

• "Rocket Refractories" is a new review of advances in that field to 1955. It brings together literature on refractory substances, including metal oxides, metal-metalloid compounds and intermetallic compounds — also discusses requirements for rocket refractories, areas for future research. Order PB 131503. Price: $1.50.

APPARATUS

Molecular Models: Will Corp.'s (Rochester, N.Y.) new polyvinyl chloride Godfrey Molecular Models reportedly will allow construction of all organic forms. The set, called No. 40 Molecular Model Kit, includes tetrahedral carbon, trigonal carbon, digonal carbon, hydrogen, digonal oxygen, carbonyl oxygen, quaternary nitrogen, nitrogen amine cap, trigonal nitrogen, chlorine and digonal sulfur atoms. Cost: $49.50.

•

Fast Melt Check: A new melting-point apparatus manufactured by Buchi (Switzerland) and available from Arthur S. LaPine & Co., (Chicago) is designed to give a large number of melting point determinations quickly. A small mass of heating fluid allows for rapid cooling, reheating (cooling time: 10 minutes, from 300 to 100 C, without compressed air; four minutes with compressed air). Price: $290.

•

Midget Iron Tester: The iron content of brine or water in the 0-10-ppm. range can be quickly determined by W. A. Taylor and Co.'s (Baltimore) new Midget Iron Tester. Eight iron-content color standards are housed in a small plastic block, are compared visually by the user with the sample to which reagents have been added.

PRODUCTS

Battery Plate: Gould-National Batteries Inc. (Trenton, N. J.) is out with a Silconic battery plate. By introducing arsenic and silver-cobalt phosphates into the active materials of a positive battery plate, silver and cobalt are made to migrate to grid members of the battery, form a protective coating claimed to be impervious to oxygen and acid. Reportedly, this prevents the most common cause of battery failure, grid separation.

•

Ion-Exchangers: Four new analytical-grade ion-exchange materials based on cellulose are available from Bio-Rad Laboratories (Richmond, Calif.). They are reportedly suitable for chromatographic fractionations of high-molecular-weight materials beyond the range of conventional exchange resins. They are called Cellex E, D, P, and CM, are priced at $15/100 gms.

20 OFF-BEAT INTERMEDIATES!

- 2-Acetylthiophene
- Chelidamic Acid
- Chloracetopyrocatechol
- 4,7-Dichloroquinoline
- Diethylacetamidomalonate
- 5-Diethylamino-2-aminopentane
- Diethylbenzamidomalonate
- Diphenylacetonitrile
- Ethylacetamidocyanoacetate
- Gramine
- Indole-3-Acetic Acid
- M-Hydroxyacetophenone
- Malononitrile
- 2-Mercaptothiazoline
- 3-Methylthiophene
- Phenylcarbethoxypyrazolone
- Phenylmethylpyrazolone
- Diphenylpyrazolone
- p-Toluic Acid
- Tropinone HBr

All these and many other laboratory chemicals are included in WINTHROP'S 1958 Catalog. Send for your copy today.

Special Chemicals Dept. CW-118

Winthrop LABORATORIES

1450 Broadway,
New York 18, N.Y.

Target

Superadhesive for Rockets

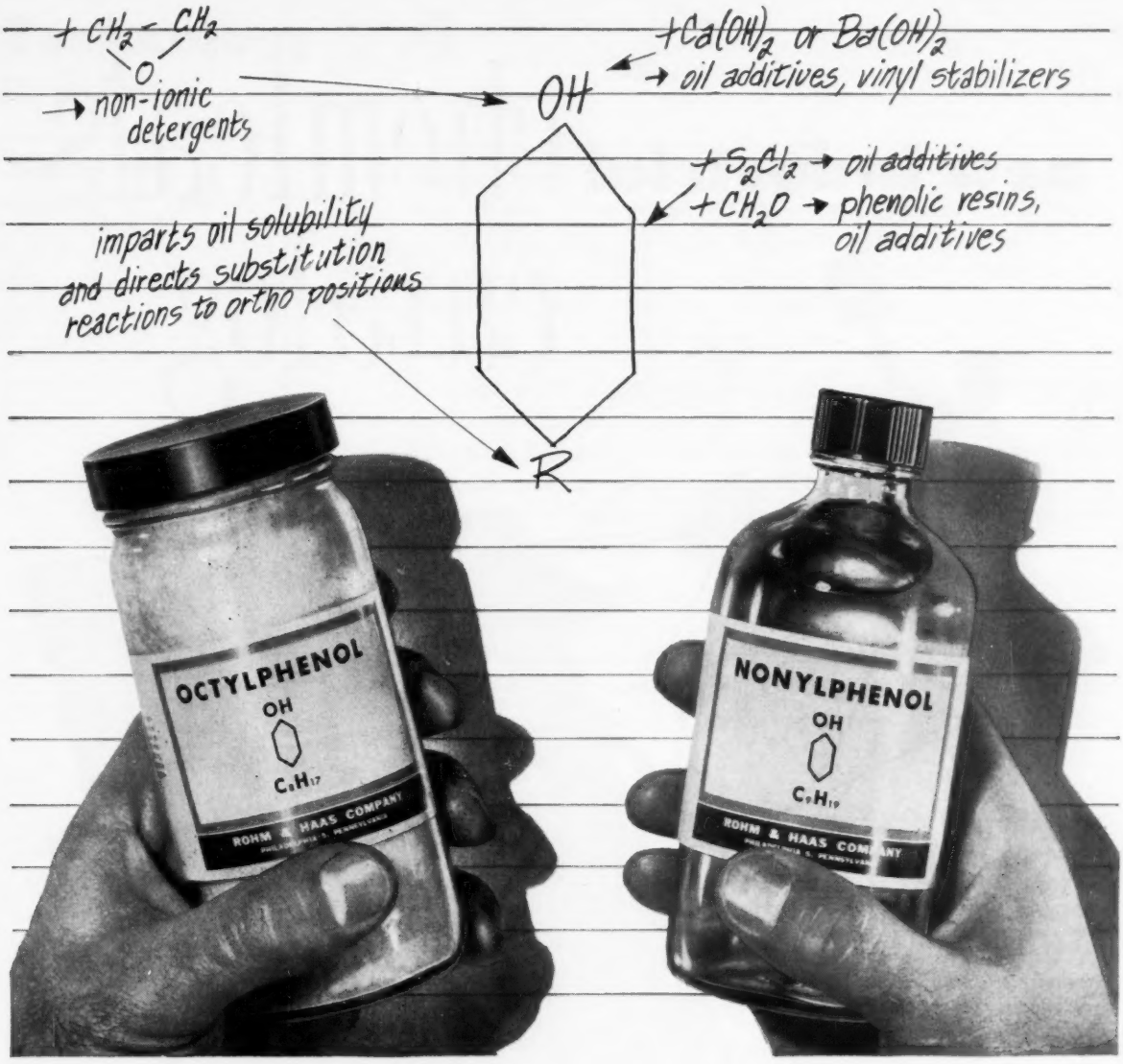
The coming shift from liquid to solid propellents in the larger missiles and rockets is forcing designers to find new ways to strengthen casings while whittling off structural weight. They agree that framework welding and rivets and bolts (which may tear through ultrathin rocket skins) may have to give way to broader use of light, tough adhesives.

Already organic adhesives (e.g., epoxy resins, silicones) have proved their worth in missile construction. At 400-500 F, however, these adhesive types start losing their grip, and may burn, char or volatilize when further heated.

So a good measure of new adhesives research (much is security-veiled) is in inorganics. At the University of Illinois (Urbana), for example, Prof. Dwight Bennett and associates have turned up glass-ceramic bonding agents that withstand 1,000-psi. separating forces at 1000 F. Bennett is working with barium borosilicates, lead borosilicates, sodium silicates, aluminum phosphates, metal powders, etc. His objective: to push heat resistance and adhesion power up, setting temperatures down. Similar research is under way at Wright Air Development Center (Dayton, O.), Aerojet General (Azusa, Calif.) and other government and industrial laboratories.

Considering that the U.S. is spending $2,917 million for rockets and missiles this year, of which roughly 25% is for frames, suitable adhesives are sure to enjoy a multimillion-dollar market.

First markets for the new adhesives, of course, would be in military rocketry. After that, civilian applications—ranging from cargo rockets to some types of high-temperature-resistant equipment—will offer profitable outlets. But so far, the adhesive to cash in on this potential has yet to be developed—and that's the potentially rewarding target for the chemical industry.



LOW-COST ROHM & HAAS ALKYLPHENOLS

Reactive Intermediates Available in Drums or Tankcars

Rohm & Haas octylphenol and nonylphenol, useful, versatile intermediates of high purity and low cost, may provide new ways for improving your products and their properties. These alkylphenols can be ethoxylated, esterified, sulfonated, halogenated, nitrated and used in many other reactions.

When used in small proportions, alkylphenols impart oil solubility, water resistance, and good electrical properties to phenol-formaldehyde resins. Excellent lubricating oil additives and vinyl stabilizers are obtained from calcium and barium salts of alkylphenol derivatives. Ethoxylated alkylphenols are good surface-active agents. Octylphenol is used to stabilize ethyl cellulose against ultraviolet light deterioration.

Interesting possibilities are also offered by the use of alkylphenols as intermediates in the preparation of fungicides, bactericides, insecticides, dyestuffs, pharmaceutical compounds and rubber chemicals.

Rohm & Haas would be pleased to send you without obligation a 12-page booklet describing numerous alkylphenol reactions.

Chemicals for Industry

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

new industrial chemicals catalog

Antara® Offers an expanded and completely revised chemicals catalog. For convenience, it is divided into separate sections devoted to surfactants, organic intermediates, acetylene derivatives, carbonyl iron powders, ethylene oxide and glycols and numerous specialty chemicals, including optical brighteners, ultraviolet light absorbers, etc

The new 64-page catalog describes the composition, properties and uses of Antara products.

Fill in and mail the coupon today for your free copy of this valuable reference book.

ANTARA CHEMICALS
435 Hudson Street, New York 14, N. Y.

Please send the new Antara Chemicals Catalog

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

SALES OFFICES: New York • Providence • Philadelphia
Charlotte • Chattanooga • Chicago • Portland, Ore.
San Francisco • Los Angeles

Technology
Newsletter

CHEMICAL WEEK
November 15, 1958

Beer can now be fermented continuously by a process developed at the Brewing Industry Research Foundation (Nutfield in Surrey, England). With its new, still-experimental process, the foundation says, beer can be produced six times faster than is possible with conventional batch equipment. Also, less equipment is required, and nothing is lost in the beer's flavor, strength, foam stability and shelf-life.

•

A new liquid-fueled, upper-stage rocket engine, capable of putting a several-thousand-lbs. satellite into orbit, will be developed for the Air Force by Pratt & Whitney Division of United Aircraft Corp. The Defense Department last week awarded the company a development contract that provides about a $9 million initial expenditure on the design project. Estimated cost of the complete development program: $23 million.

Air Force Research and Development Command is seeking the high-energy upper stage for use in conjunction with an Atlas-type first-stage vehicle. Power requirements of the proposed liquid-fueled rocket were not disclosed, but will likely be in the range of 20,000-50,000 lbs. of thrust —well in excess of the upper-stage rocket engines used for present satellite and lunar probe vehicles.

•

Computer control is being tailored to the requirements of cement processing by Thompson-Ramo-Wooldridge Products Co., division of Thompson-Ramo-Wooldridge, Inc. The company is now engineering its RW-300 system for a major West Coast cement company, reports that it's "working with" several other firms in petroleum, chemical, electric power and aviation industries.

•

Dry whole milk that mixes readily with either warm or cold water, keeps for months without refrigeration, and matches fresh milk in taste, nutritional value and cost is in the offing. USDA's Agricultural Research Service at Wyndmoor, Pa., and Washington, D.C., has produced dry whole milk crystals that readily reconstitute. But these crystals are bulky, expensive to package (nitrogen is required), and keep for only two to three months at room temperature—not long enough to meet commercial requirements, and further research is needed.

•

Chemical intermediates are newest research payoffs for polish-maker S. C. Johnson and Sons, Inc. (Racine, Wis.). It plans to start semi-works production of a new intermediate, diphenolic acid, later this year. The compound, also identified as 4,4-bis (4-hydroxyphenyl) pentanoic acid, has had an encouraging reception among researchers interested in it as starting point for synthesizing plasticizers, lubricating oil additives, surface active agents, etc. Eventual production price is estimated at 35-40¢/lb.

A new drug that eliminates pinworm infection in one shot—instead of the conventional, several-week treatment that requires several dosages daily—has been developed by Parke, Davis. J. Walter Beck, associate professor of microbiology at the University of Miami (Florida) school of medicine, has been testing the drug, calls it a "marked advance in pinworm therapy." Called Poquil, the new compound is chemically pyrvnium pamoate. Its market: the 30% of the U.S. children infected with the intestinal worm.

•

A "living insecticide" scored better than equivalent (pound-for-pound) dosages of DDT-Toxaphene in crop tests reported this week by University of California researchers Irvin Hall and Lloyd Andres. At the Citrus Experiment Station (Riverside) of the university, Hall and Andres dusted cauliflower and cabbage plants with *Bacillus thuringiensis*, achieved 80-100% kills of the cabbage looper and the imported cabbage worm. Two to four lbs. of the bacillus were used (at an arbitrary standard of 100 billion spores) in each gram of dry material in 30 pounds of dust per acre.

•

Potash producers and the Atomic Energy Commission are cooperating on a plan for a small-yield underground nuclear detonation in salt deposits near Carlsbad, N.M. The small-scale test—designated Project Gnome—is planned as part of AEC's Project Plowshare, will be deferred along with all other experiments pending negotiation on the suspension of nuclear testing. Representatives of the potash mining industry will meet AEC planners next week to consider possible shock effects of a 10-kiloton blast on their final production areas.

•

Tetrazolium salts for quick detection of toxic boron hydrides in the atmosphere are now available from Dajac Laboratories, division of The Borden Chemical Co. (Philadelphia). These salts change color in the presence of the hydrides, and offer an important safeguard to chemical researchers. The method was worked out by Callery Chemical Co. (Pittsburgh), according to U.S. Patent 2,848,307.

•

Cloth can be made of monofilaments of pure, fused quartz that has been twisted into thread. It's done by a new method developed at General Electric's Lamp Glass Department (Cleveland). Result: a product combining the basic properties of glass fabric, the very-high-temperature resistance of quartz and high tensile strength at elevated temperatures. GE is currently investigating a wide range of potential commercial and industrial applications for the cloth in such uses as filters, flexible insulation and high-temperature reinforcement for plastics. The new products cost several times as much as ordinary plastic-reinforcing materials. But they're stronger than conventional fibers at high temperatures and, in place of metal, may permit weight reductions of more than 10 to 1.

tomorrow's products today... through **ENJAY PETROCHEMICALS**

Vinyl lures that look alive

Enjay supplies Oxo Alcohols for Vinyl plastics from which manufacturers make these colorful duck decoys and artificial bait. Many a sportsman vouches for the natural look of these lures . . . high tribute to the outstanding quality of the raw materials used. In plastics, as in other fields, Enjay helps make possible tomorrow's products—today! Nine conveniently located offices stand ready to serve you.

ENJAY

Pioneer in Petrochemicals

ENJAY COMPANY, INC., 15 West 51st St., New York 19, N. Y.

Other Offices: Akron · Boston · Charlotte · Chicago · Detroit · Los Angeles · New Orleans · Tulsa

HOW CAN YOU USE THE RARE EARTHS?

Find new uses through process and product development research

a report by LINDSAY

If you have been curious about the rare earths and have wondered if they might be useful tools in your own production processes, you may find it rewarding to talk with us.

We can give you a wealth of technical data about the high purity rare earth and yttrium oxides. And we may be able to make suggestions which will be helpful to you in exploring potential applications of the rare earths.

The amazing versatility and unique characteristics of the rare earths are sure to challenge the imagination of your research people. It is quite likely that through research you may find, as so many others have, profitable applications for these materials. The wide variety of uses for the rare earths is indicated by these few examples.

Neodymium . . . in ceramic dielectric applications.

Cerium . . . a stabilizer against radiation browning in glass.

Dysprosium . . . in neutron measuring devices.

Gadolinium and *lanthanum* . . . in maser microwave amplifiers.

Ytterbium, samarium, europium, gadolinium and *lanthanum* . . . as phosphor activators.

Yttrium oxide . . . in an yttrium iron garnet, a ferrimagnetic material, for use in microwave equipment.

Erbium, europium, samarium, dysprosium and *gadolinium* . . . in control rod devices in nuclear reactors.

Most of the rare earth and yttrium oxides, in purities up to 99.99%, are available for prompt deliveries in quantities of an ounce to hundreds of pounds. You can be sure of materials needed for production purposes.

Current prices make high purity rare earths attractive and economically sound for a wide variety of chemical and industrial uses. Lower purity rare earths are more attractive cost-wise and may be suitable for your purposes.

TYPICAL MAXIMUM IMPURITIES IN LINDSAY PURIFIED RARE EARTH AND YTTRIUM OXIDES

ATOMIC NO.	OXIDE	CODE	PURITY	% RARE EARTH MAXIMUM IMPURITIES AS OXIDES
57	La_2O_3. LANTHANUM OXIDE	528 529	99.99 99.997	0.01 Pr, 0.001 Ce. 0.0025 Pr, 0.0005 others
58	CeO_2. CERIC OXIDE	215 216	99.8 99.9	0.2 (largely La + Pr + Nd). 0.1 (largely La + Pr + Nd).
59	Pr_6O_{11}. PRASEODYMIUM OXIDE	726 729.9	99 99.9	1 La + Nd + smaller amounts of Ce and Sm. 0.1 Ce + Nd.
60	Nd_2O_3. NEODYMIUM OXIDE	628 629 629.9	95 99 99.9	1-4 Pr, 1-4 Sm, 0.5-1 others. 0.1-0.4 Pr + 0.1-0.4 Sm + 0.5 others. 0.1 (largely Pr + Sm).
62	Sm_2O_3. SAMARIUM OXIDE	822 823	99 99.9	0.2-0.7 Gd, 0.2-0.6 Eu, and smaller amounts of others. 0.1 (largely Nd + Gd + Eu).
63	Eu_2O_3. EUROPIUM OXIDE	1012 1011	98-99 99.8	1-2 Sm + smaller amounts of Nd + Gd + others. 0.2 (largely Sm + Gd + Nd).
64	Gd_2O_3. GADOLINIUM OXIDE	928.9 929.9	99 99.9	1 Sm + Eu + trace Tb. 0.1 Sm + Eu + trace Tb.
65	Tb_4O_7. TERBIUM OXIDE	1803 1805	99 99.9	1 Gd + Dy + Y. 0.1 Gd + Dy + Y.
66	Dy_2O_3. DYSPROSIUM OXIDE	1703 1705	99 99.9	1 (largely Ho + Y + Tb + small amounts of others). 0.1 Ho + Y + traces of others.
67	Ho_2O_3. HOLMIUM OXIDE	1603 1605	99 99.9	1 (largely Er + Dy + small amounts of others). 0.1 Er + Dy + traces of others.
68	Er_2O_3. ERBIUM OXIDE	1303 1305	99 99.9	1 Ho + Dy + traces Yb and Y. 0.1 Ho + Tm.
69	Tm_2O_3. THULIUM OXIDE	1405 1403	99.9 99	0.1 Er + Yb + trace Lu. 1 Er + Yb + trace Lu
70	Yb_2O_3. YTTERBIUM OXIDE	1201 1202	99 99.9	1 Er + Tm + trace Lu. 0.1 Tm + trace Lu + Er.
71	Lu_2O_3. LUTETIUM OXIDE	1503 1505	99 99.9	1 Yb + Tm + traces of others. 0.1 Yb + Tm + traces of others.
39	Y_2O_3. YTTRIUM OXIDE	1112 1115 1116	99 99.9 99.9+	1 Dy + Gd + traces Tb and others. 0.1 Dy + Gd + traces Tb Approx. 0.05 Dy + Gd.

For detailed information and prices, write for our bulletin "Purified Rare Earth and Yttrium Oxides"

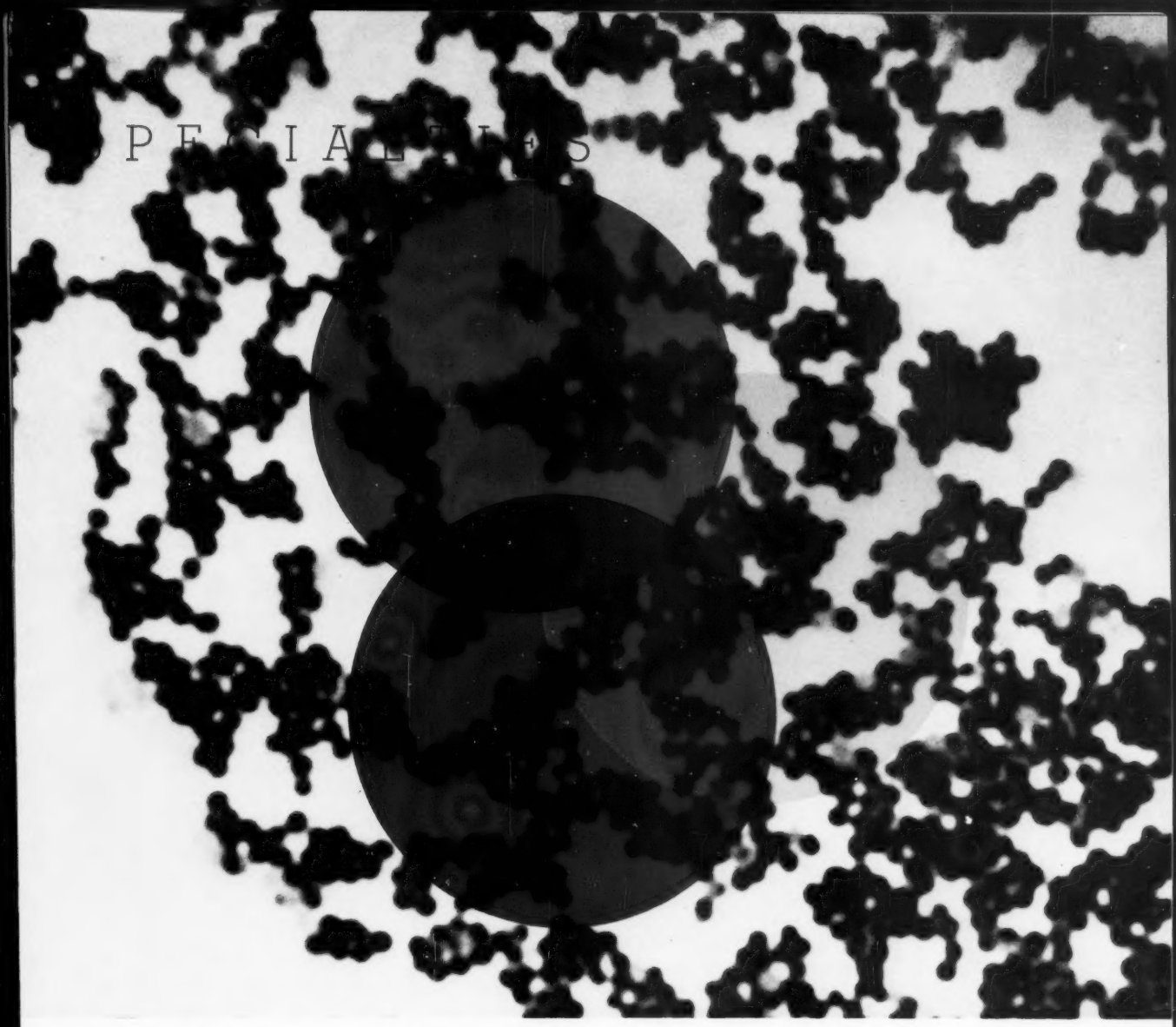
PLEASE ADDRESS INQUIRIES TO

TRONA

LINDSAY CHEMICAL DIVISION

American Potash & Chemical Corporation

270 ANN STREET • WEST CHICAGO, ILLINOIS



Against staphylococcus aureus (photomicrograph above), disinfectants do job antibiotics can't.

'Staph' Threat Tests Germicide Makers

Hospitals from coast to coast are currently undergoing one of the biggest housekeeping overhauls in their aseptic careers. Reason: They're out to fight staphylococcus aureus—a bacteria that has developed a strong resistance to most antibiotics. The hospitals' move to stamp out "staph" can be a shot in the arm to sales of germicidal cleaning compounds, currently going to hospitals at a $10-15 million/year rate.

Although staph isn't a new germ (it's been around since Biblical times, causing everything from boils and carbuncles to blood poisoning) its threat to hospitals is new. Proof of this is that the total number of patients infected with staph in the nation's hospitals since '54 is estimated at close to 500 patients.* Before '54, the number was negligible, since most hospital staph bugs were killed by the sulfa drugs or the antibiotics.

And this threat is one most antibiotics don't seem to be able to meet (60-80% of staph in many hospitals is now resistant to penicillin). The germ's suddenly developed resistance, say some physicians, is partly because antibiotics have been used indiscriminately, partly because hospitals have become lax in old-time aseptic techniques—techniques of getting rid of bacteria.

And, it's the aseptic techniques for cleaning walls, floors, laundries, dishes —even air conditioners—that hospitals are now cracking down on. "We've become more clean conscious," says Barbara Mills, Executive Housekeeper, Building Services, of New York's Roosevelt Hospital.

Break for Germicidal Sanitizers: Antibiotics, inability to control staph

*Perhaps the most tragic of all these outbreaks occurred in a Houston, Tex., hospital where 16 babies died of staph infections in just four months.

outbreaks has meant a clear break for specialty products. Specialties makers claim they've got the products that work well against staph, and it's now up to the hospitals to insure proper buying and use of them.

For the most part, the products are not brand new — but they've been thoroughly proved. Here's a rundown of key product types:

The Phenolics: The synthetic phenolics, used to disinfect floors and walls, are being pushed by many chemical specialties makers as effective staph killers. Dow's *o*-phenylphenol and Monsanto's *o*-benzyl-*p*-chlorophenol are among the most popular germicides in the phenolic class. Both of these compounds (which are sold by Dow and Monsanto to formulators) kill germs rather than inhibit their growth (as, by definition, do bacteriostats). They are both effective against what are termed Gram-negative and Gram-positive bacteria, and are inexpensive to use.

The Iodines: Also effective in environmental staph control is iodine and its compounds. Iodine mixed with a nonionic surfactant plus a buffer (compound class: iodophore) is upheld by many hospital officials as an effective disinfectant for floors, walls, woodwork and other areas. These iodine detergents are nonstaining, nontoxic, inexpensive and effective against a broad range of bacteria—both Gram-negative and Gram-positive. West Chemical Co's. (New York) Wescodyne is among the more popular iodine detergents used in hospitals.

Ethylene oxide, highly regarded as one of the most effective methods for hospital sterilization is difficult and expensive to adapt to room cleaning. Much the same can be said for ultrasonic sterilization—except for surgical instrument cleaning, both ultrasonic and ethylene oxide aren't yet practical for large-scale hospital sanitization.

The Quats: The quaternary ammonium compounds, while well-known for their effectiveness against staph and other Gram-positive bacteria, aren't recommended for killing some Gram-negative bacteria. Use of the quats as broad-range germ killers is, therefore, somewhat limited, since most hospitals prefer a germicide that kills both germ types. Another drawback to the quats is that they are incompatible with the anionic cleaners.

Limited Market: Other compounds, such as pine oil, aren't used very much in fighting staph because they are bacteriostatic, that is, inhibit the growth of germs rather than kill them. The cresols and cresylic acid are still in some favor, but because of their characteristic tar acid odor, their use is also limited.

The phenols are still marketed, but because they must be used in high concentration (5% phenolic solution) to be effective, the synthetic phenols are becoming more popular.

Most of the metallic compounds, silver, mercury, copper, tin, aren't accepted widely because of their toxic effects.

Hexachlorophene is germicidal against staph but, like the quats, isn't too effective on Gram-negative bacteria. It's now being used widely in hand soaps, powders, lotions, but not as a general disinfectant.

Reinforcements on the Way: Many other germicides directed toward fighting staph in and out of the hospital are now in the works. Armour Chemical Division (Chicago) reportedly has a new product on the way. Armour's giving no details, but it does say that its new product is "not a soap" and can be used in the final laundry rinse. Swift and Co's. Technical Products Division (Chicago) also has a product in the works. Silico Chemical Co. (Chicago) is coming out soon with a new colloidal silver compound, claimed to be nontoxic, nonstaining, and to work well on floors, in the laundry and even in washing foods.

Selling Puzzle: Surprisingly, hospitals' new concern with good housekeeping has not altered or improved their buying of sanitizing chemicals, specialties makers report.

One of the biggest problems of specialties dealers is locating the person who actually has control over cleaning-supply buying. In some hospitals, buying is left to the chief surgeon; in others, to the housekeeper, purchasing agent, pharmacist, chief administrator, or the janitor. "When the surgeon isn't interested, the housekeeper has no voice in the buying and the purchasing agent isn't particularly competent, just who should we sell to?" asks one specialties maker.

Barbara Mills, (Roosevelt Hospital, New York), reports there may be a trend to upgrade the executive housekeeper's position. "Many executive housekeepers are nothing but rocking chair warmers," she says. "It should be the housekeeper's job to make sure the disinfectant on the floors disinfects. Proper product testing and proper product use should be her job. And, the housekeeper should have a stronger voice in the buying of these chemical specialties," Miss Mills adds.

Another move toward organizing hospital purchasing procedures comes in the recommendations of the American Hospital Assn., in its guide to fighting antibiotic-resistant staph. The AHA suggests that hospitals set up Committees on Infections. Among other duties, these committees would review, improve and reinforce all aseptic techniques. In many cases, where hospitals have followed the AHA's suggestions, the committees also approve chemical specialties before they're used.

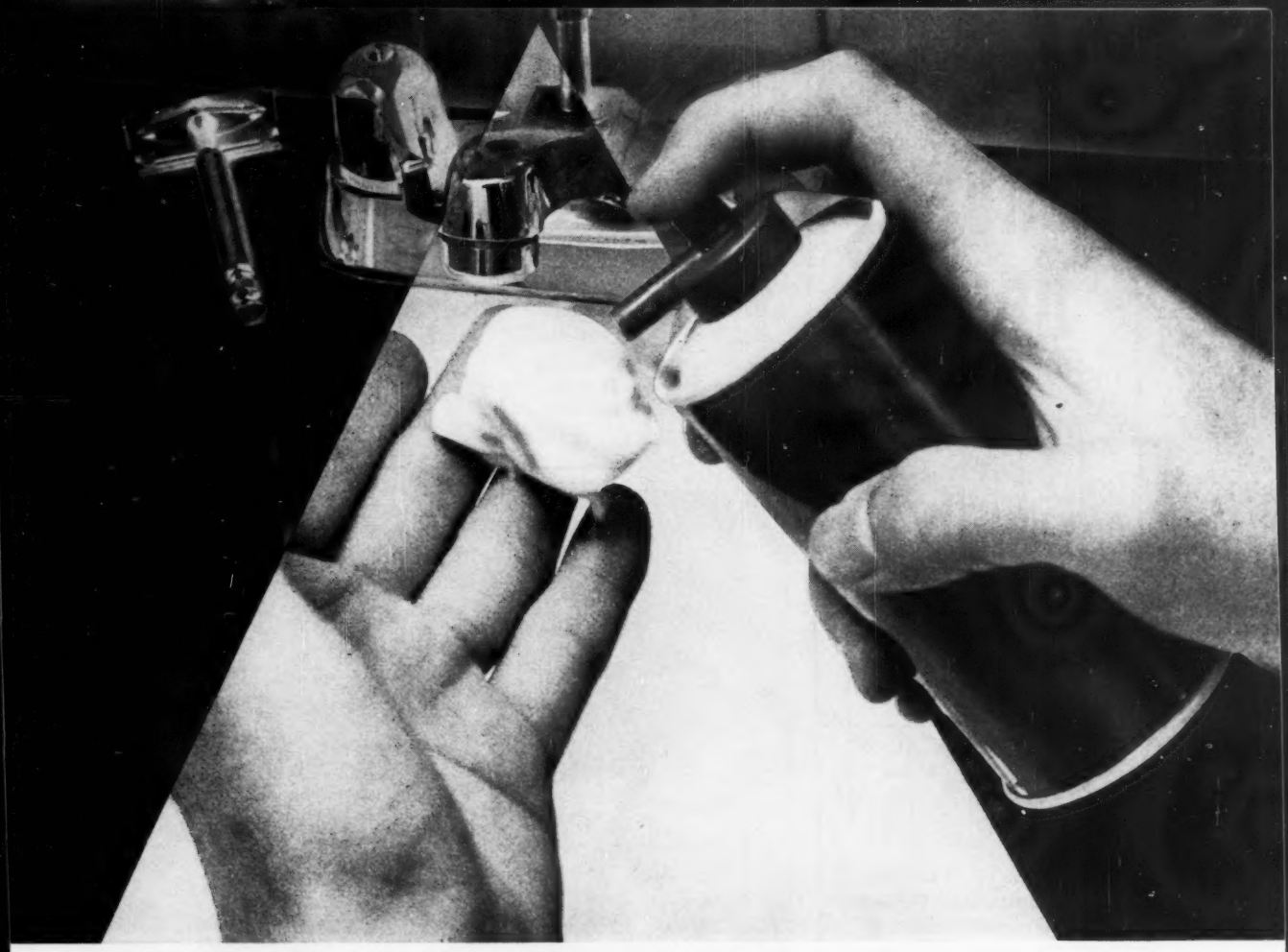
New Drugs Too: Even though stringent aseptic techniques have helped reduce staph epidemics, cleanliness isn't the final answer to it. There must be new help for persons already infected. With that in mind, most drug companies have lately stepped up research for new antibiotics that will kill the germs in the body.

Eli Lilly is now testing its new antibiotic, vancomycin, for just this purpose, and some other new products are already on the market: Pfizer (New York) is offering TAO, a variation of oleoandymycin; Abbott (Chicago) has ristocetin; Bristol Labs, a subsidiary of Bristol Myers (New York) is out with kanamycin. All these are claimed effective against *staphylococcus aureus*.

Just where the final answer to staph lies, remains to be seen. The one thing hospitals, chemical specialties makers and drug companies agree on is this, says a spokesman for a major U. S. hospital: "Every hospital is sitting on a bomb that can go off any minute. No hospital now has the staph problem under control."

PRODUCTS

Pest Check: The federal government is strengthening its control over importation and interstate shipment of dangerous plant pests. The new U. S. Dept. of Agriculture regulations, which become effective Nov. 24, will affect shipments of biological specimens and other materials used by agricultural chemical test labs, scientists, biological



This new packaging idea sells 66% of a $60,000,000 market

In 1958 some $40,000,000 worth of aerosol shave creams will be sold. Aerosol packaging has captured about ⅔ of the $60,000,000 shaving-cream market and has revolutionized sales for hair fixatives, colognes, insecticides and a host of other products.

The reasons for this success are simple. Aerosols deliver a product in a completely new form—a form that's easier to use and apply, without mess or waste. If your product can be brushed, poured or sprayed, you stand a good chance to add new sales appeal—create a positive competitive advantage—if you package it in an aerosol.

It's not necessary to set up your own aerosol packaging line to enter this field. A custom filler near you has the knowledge and equipment to help you. He can package your formulation for testing and help you from planning through production.

If you don't know the name of a custom filler, write Du Pont. We'll send you a list and include survey data on the market for aerosol products, plus information about Freon* propellents for aerosols. More of today's aerosols are powered with "Freon" than with any other propellent. Write E. I. du Pont de Nemours & Co. (Inc.), "Freon" Products Division 3311, Wilmington 98, Delaware.

Best-selling aerosols are powered with

FREON® *propellents*

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

*FREON AND COMBINATIONS OF FREON- OR F- WITH NUMERALS ARE DU PONT'S REGISTERED TRADEMARKS FOR ITS FLUORINATED HYDROCARBON PROPELLENTS.

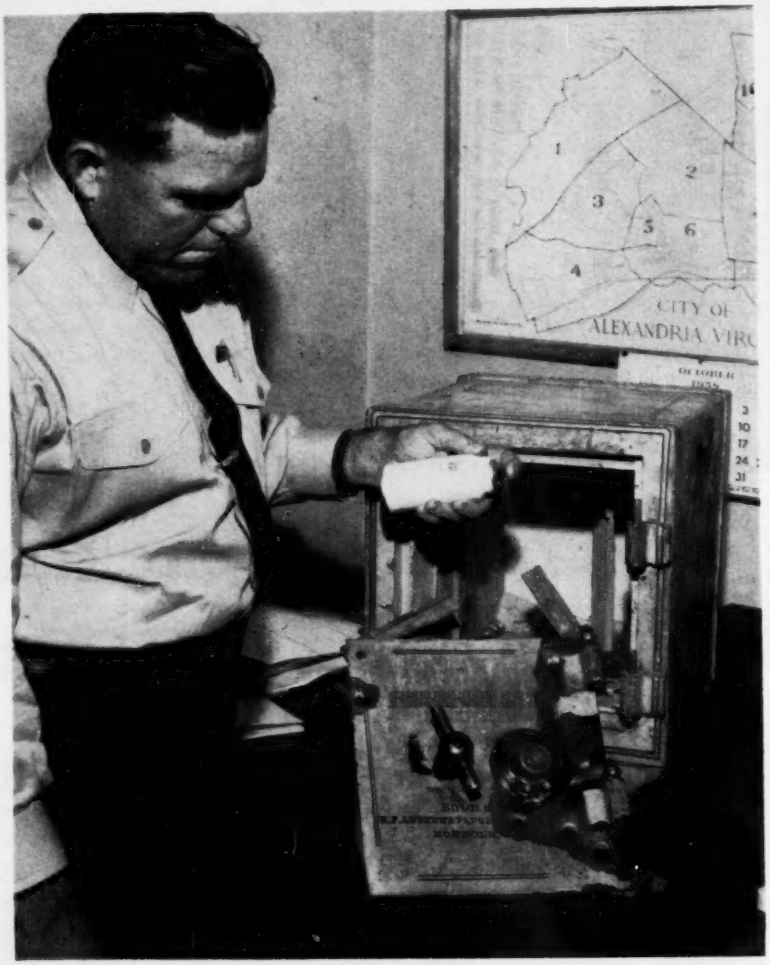
Here at the R. T. Vanderbilt Company Specialties Department, we take great pleasure in watching the rising sales curves of those products that include VEEGUM® in their formulas.
We have often been able to help a manufacturer who had a fine product but was plagued by emulsion stability, viscosity or suspension problems. The addition of relatively small amounts of VEEGUM, dispersed in water, often solves such problems, and sales curves climb upward.
VEEGUM is purified magnesium aluminum silicate. It is non-toxic and non-irritating. If you have formulation problems, why not send for information on VEEGUM today?

R. T. VANDERBILT CO.,
SPECIALTIES DEPARTMENT
230 PARK AVENUE
NEW YORK 17, N. Y. P–5
( ) Please send VEEGUM Bulletin 122C
( ) Send sample of VEEGUM
State Application_____
Name_____
Title_____
(Please attach to your Company letterhead)

supply houses and others. All plant pests, including insects, mites, nematodes, protozoa, bacteria, fungi, parasitic plants, and viruses, will come under control of USDA. Previous USDA regulations applied only to certain injurious insects and mollusks, but now entry and interstate movement of all these varieties of plant pests will be required to have USDA approval. Full details of the new regulation were published Oct. 24 in the *Federal Register*.

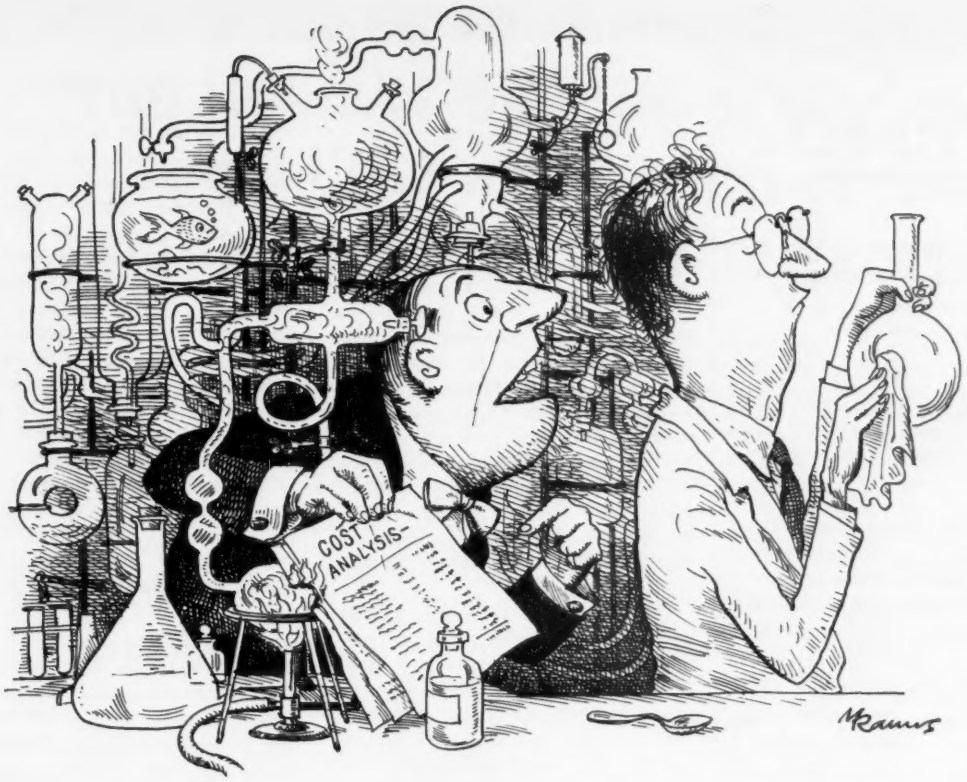
Painting a Rosy Future

The trade paint industry is due for a 7% increase in production by '61, according to a study just completed by American Can Co. Canco forecasts total consumption of trade paint —paint, varnish and lacquer sold directly to consumers and jobbers through retail and wholesale outlets, excluding industrial paints—in '61 at 335 million gal., 7% higher than in '56. This is almost 26% more than



New Spray to Catch a Thief

Sgt. Donald Mooney, of the Alexandria, Va., police department, tests (*above*) Atlantic Research Corp.'s (Alexandria, Va.) new plastic spray for "lifting" latent fingerprints. Atlantic says that its new quick-drying spray produces more sharply defined reproductions of latent prints than other methods now used. The spray formulation, developed under a Quartermaster Corps contract to improve methods of battlefield identification of casualties, will be sold to civilian organizations.



The Perfect Solution:

(it can save you money)

"Percy, we've got to face the big problem," exclaimed Edgelow the exasperated executive of Extra Efficiency Drug Co. "Production costs on our multivitamin products must come down."

"Humm, yes, the big problem. These assistants of mine just never will learn to keep an orderly laboratory," answered Percival while polishing his paraphernalia.

"Percy – the big problem," interjected Edgelow.

"Oh yes! You know Pfizer has a new form of vitamin B_{12}—it's called STABLETS* – the most stable form ever produced – allows for a 50% reduction in overages. It's quite likely that the use of STABLETS would reduce our costs substantially. Now please allow me to continue my cleaning."

"Percy you're a prince – and so is Pfizer, clean away to your heart's desire" sighed Edgelow in utter relief.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Pfizer has a full line of high quality forms of Vitamin A, B Complex, and C for medicinal and food uses. If you are confronted with vitamin problems or any other problems which might be solved by a high-quality organic chemical, think of Pfizer first. Chas. Pfizer & Co., Inc., Chemical Sales Division, 630 Flushing Avenue, Brooklyn 6, N. Y.

*TRADE MARK

Pfizer **CHEMICAL SALES DIVISION**

. . . sells more than 100 organic chemicals for food, medicinal and industrial uses.

Some bulk products of this Division are:

CITRIC, TARTARIC, OXALIC ACIDS AND SALTS • ASCORBIC ACID AND OTHER VITAMINS • CAFFEINE • ANTIBIOTICS • PLASTICIZERS

MEMO:

TO:
UNION CARBIDE
CHEMICALS COMPANY
30 East 42nd Street
New York 17, New York

Gentlemen:

I have heard about the many and varied applications of Ucon fluids and lubricants. Please tell me how I can use them as:

☐.....Hydraulic fluids
☐.....Fire-resistant hydraulic fluids
☐.....Gear lubricants
☐.....High-temperature lubricants
☐.....Low-temperature lubricants
☐.....Rubber lubricants
☐.....Packing lubricants
☐.....Compressor and Pump lubricants
☐.....Lift-truck lubricants
☐.....Metal-working fluids
☐.....Heat-transfer fluids
☐.....Grease components
☐.....Textile lubricants
☐.....Defoamers and De-emulsifiers
☐.....Cosmetic components
☐.....Ink and dye diluents
☐.....Leather softeners
☐.....Solvents and Plasticizers
☐.....Chemical intermediates

NAME_____

ADDRESS_____

Specific requirements for the job I have in mind are:

UNION CARBIDE
CHEMICALS COMPANY
DIVISION OF UNION CARBIDE CORPORATION

"Ucon" is a registered trade-mark of Union Carbide Corporation

the average amount used in '47-'49. About 90% of this 335 million gal. will be used for repainting purposes, the rest for new construction.

Key to the expected increase in demand is a shortening of the repainting cycle, which in turn is brought about by rising consumer income and the popularity of easy-to-use interior coatings. Canco's study shows that the higher a consumer's income, the more frequently he repaints his house. Income per household in '61 is expected to be $5,552, compared with $5,184 in '56.

Population growth also will swell the paint market. A new home-building boom is expected to begin in '61, as the first of the heavy postwar "baby crop" matures and sets about building houses.

Outlook: more than 1.1 million new houses that year. And as communities rise, they create a proportionate increase in construction of stores, schools and similar structures.

Canco says that about 19 million gal. of paint could be added to '61 consumption figures if it weren't for a decrease in use of exterior paints. Canco attributes the decline to greater use of nonpaint surfaces in construction and to development of a one-coat house paint equal in performance to two-coat paint.

Pesticides: $1 Billion?

Farm chemical makers at the recent meeting of the National Agricultural Chemicals Assn. in Savannah, Ga., heard some optimistic pesticide predictions. According to NACA President Jackson Vernon, sales of farm pesticides will top $1 billion by '75 (*CW Market Newsletter, Nov. 8*). Pesticide sales at the manufacturers' level is now estimated at $265 million/year.

Vernon, vice-president of Food Machinery and Chemical Corp., gave these reasons for his predicting an upturn in pesticide sales: (1) population growth, (2) achievement of chemical control of malaria and other insect-borne diseases.

Vernon urged pesticide makers to improve on some of the "traditional business practices of a highly seasonal industry earning a relatively low income on invested capital." He said the industry "can and should reappraise our long-time practices controlling inventories, accounts receivable and sales."

Pesticide makers now spend in excess of $20 million/year on research and development and, Vernon says, "these activities must be pushed more vigorously."

In regular business sessions, NACA members re-elected J. Vernon as president and Charles Sommer (vice-president, Monsanto Chemical Co.) as vice-president. Four new members were elected to the board of directors: Evan Collinsworth, Jr. (president of Velsicol Chemical Corp., Chicago); William Dixon (general sales manager, Dow); Frank Feffer, Sr. (president, Arizona Fertilizers, Inc., Phoenix) and Robert Thompson (president, Thompson-Hayward Chemical Co., Kansas City, Mo.).

EXPANSION

Chemical Processing Compounds: Turco Products Inc. (Los Angeles) has broken ground in Wilmington, Calif., for new headquarters. The project, scheduled for completion next summer, consists of an administration building, a research center and an engineering service building. The new facilities will be on the site of Turco's manufacturing plant, built three years ago. The company produces wash-off paint removers, two-layer carbon removers. It developed the Chem-Mill Process of forming metals by chemical means.

PRODUCTS

Treat for Throats: Ciba Pharmaceutical Products (Summit, N. J.) has introduced a nonprescription throat lozenge, called Bradosol. Contents: 1.5 mg. of a quaternary-ammonium type of antiseptic and 2.5 mg. of benzocaine. The lozenge is said to exert the same degree of activity against antibiotic-resistant *staphylococcus aureus* strains as against normal antibiotic-sensitive lab strains.

•

Repellent Gain: Crag fly repellent has just been cleared by the U. S. Dept. of Agriculture as an ingredient of livestock spray formulations on a nonresidue basis. Union Carbide Chemicals, maker of Crag, says that its product is effective against horseflies, stable flies, hornflies, houseflies, mosquitoes and gnats.

You need 14 pounds of talc to equal the absorption of 1 pound of MICRO-CEL®

SYNTHETIC CALCIUM SILICATES

• No matter what your absorption problems may be, chances are you'll find the answer in Micro-Cel—Johns-Manville's new line of synthetic calcium silicates.

Pound for pound, Micro-Cel gives you far more absorption than common fillers like talc and clay . . . even outperforms products like silica gels selling for as much as 10 times Micro-Cel's delivered cost of 8¢ to 10¢ per pound.

Dollar for dollar, Micro-Cel's high absorption also wins out over both low cost and high cost fillers. Only 28¢ worth of Micro-Cel will convert a full gallon of liquid to a dry free-flowing powder. As little as 12¢ worth provides ultimate absorption of a gallon of water.

Industry is putting these properties of Micro-Cel to work in several types of applications: as an absorptive carrier to convert a liquid to a dry free-flowing powder; as a means of drying semi-solids to desired degree; to disperse liquids uniformly in a dry compound; to absorb moisture and reduce drying costs; to control liquid viscosity up to a paste or semi-solid; to assure good free flow properties of deliquescent crystals or powders.

Micro-Cel, the powder that flows like a liquid is a new line of inert synthetic calcium silicates produced by combining lime with diatomaceous silica under carefully controlled conditions. In addition to high absorption, it provides particle size as small as .02 micron and bulking action up to a full cubic foot for every three pounds.

For further information, samples and technical assistance, write to Johns-Manville, Box 14, N.Y. 16, N.Y. In Canada, Port Credit, Ontario.

One pound of
MICRO-CEL
absorbs as much linseed oil as these weights of other fillers...
1½ lb. SILICA GEL
2 lb. SYNTHETIC SILICA
2½ lb. OTHER SYNTHETIC SILICATES
7 lb. FULLERS EARTH
12½ lb. KAOLIN CLAY
14 lb. TALC

JOHNS MANVILLE JM PRODUCTS

JOHNS-MANVILLE

Micro-Cel is a product of the Celite Division

When higher efficiency suggests a fluid-bed process . . .

. . . it's a job for Vulcan-Cincinnati

The plant pictured at left employs a new fluid-bed process to produce Barium Oxide.

Difficulties encountered in the original start-up prevented production of a saleable product at profitable capacities. At this point Vulcan-Cincinnati was called upon for assistance because of their wide range of experience with fluid-bed operations (for example, the Atlantic-Vulcan fluid-bed process for direct oxidation of ethylene to ethylene oxide).

Through the coordinated efforts of Vulcan-Cincinnati and Barium Reduction Corp. engineers, the plant is now operating at more than design capacity producing Barium Oxide with a product purity of *97 to 99%!* This high product purity is in sharp contrast with the results achieved by earlier methods.

For fluid-bed processing, barium carbonate is prepared in pellet form. The pellets are fed into a tube, agitated into a fluid state by jets of nitrogen, and subjected to very high temperatures. Pressure is atmospheric, and no catalyst is used. Now that the plant has been made operational, this method enables Barium Reduction Corp. to produce high-grade Barium Oxide at an extremely low cost per ton of capacity. It is this kind of success that is leading more and more companies to bring their process problems to Vulcan-Cincinnati.

VULCAN-Cincinnati, Inc.

Engineers and Constructors • 120 Sycamore Street • Cincinnati 2, Ohio

Vul-607

HOW TO SAVE MONEY

Relieve warehouse overload.

Combined orders can cut costs.

Reduce paperwork—one shipment, one order, one invoice.

BUYING SOLVENTS AND CHEMICALS

Fast action—one day service.

Products of the nation's leading producers.

***Products of the* SOLVENTS *and* CHEMICALS GROUP**

- Aliphatic Petroleum Naphthas
- Alcohols and Acetates
- Alkanolamines
- Aromatic Solvents, Petroleum and Coal Tar
- Chlorinated Paraffins
- Chlorinated Solvents
- Dresinates
- Gylcols and Gylcol Ethers
- Ketones and Ethers
- Oils and Fatty Acids
- Plasticizers
- Rosin
- Stearates
- Terpene Solvents
- Waxes

IN DRUM, TANK-WAGON, TRANSPORT AND TANK CAR FROM 17 SERVICE LOCATIONS

SC Solvents Chemicals Group Member

THE SOLVENTS AND CHEMICALS GROUP

2540 WEST FLOURNOY STREET, CHICAGO 12, ILLINOIS

Bulk Plants and Warehouses

BUFFALO, Bedford 1572
CHICAGO, SEeley 3-0505
CINCINNATI, ELmhurst 1-4700
CLEVELAND, CLearwater 2-1100
DALLAS, FEderal 1-5428
DETROIT, WAlnut 1-6350
FORT WAYNE, ANthony 0213
GRAND RAPIDS, CHerry 5-9111
HOUSTON, ORchard 2-6683
INDIANAPOLIS, MElrose 8-1361
KANSAS CITY, CHestnut 1-3223
LOUISVILLE, EMerson 8-5828
MILWAUKEE, GReenfield 6-2630
NEW ORLEANS, VErnon 3-4666
ST. LOUIS, GArfield 1-3495
TOLEDO, JOrdan 3771
WINDSOR, CLearwater 2-0933

Market Newsletter

CHEMICAL WEEK
November 15, 1958

Bigger markets for urethane foam and fluorinated hydrocarbons are growing out of recently improved foaming methods.

In the new system, chlorofluorohydrocarbons—e.g., Allied's Genetrons, Du Pont's Freons—are used as foaming agents for the urethane, instead of conventional water-isocyanate combinations that generate foam-producing carbon dioxide.

And the resulting urethane foam, with the fluorinated gas trapped inside, is an insulator greatly superior to carbon dioxide-expanded material. Its greater cold-holding ability is already permitting 33% increase of refrigerator capacity for units of same over-all measurement; upcoming improvements will permit a 58% increase in capacity. RCA-Whirlpool is now buying the new insulator; Frigidaire and Westinghouse are close to production of units using the new material; General Electric is heading in the same direction.

Type 11 fluorinated hydrocarbons are foaming workhorses, says a spokesman for Allied, but lower-boiling materials—such as the Type 12s—may be blended with Type 11 to get special insulating properties.

Conventional glass-fiber insulation will be hit by refrigerator makers' shift to the new foam. But isocyanates (ordinarily used in excess to produce the foam) will likely enjoy a sales boost. Observers figure the increasing market for the special foam will outweigh the slight loss in isocyanate use on a pound-of-foam basis.

•

Don't look for a spurt in demand for U.S.P. chloroform, just because Dow put a carload price (25¢/lb.) for the chemical on its formal price list. Bulk quantities have been available for more than a year. And, according to another bulk seller of chloroform, apparently few major takers of extra-pure material are turning up.

Biggest consumer of chloroform is the refrigerant industry, which needs it to make chlorofluorohydrocarbons of the Genetron-22 and Freon-22 types. But this doesn't require U.S.P. material, the grade that currently goes mainly into manufacture of pharmaceuticals—an outlet that represents about 10% of the total U.S. chloroform market (*CW, July 12, p. 83*).

Russia's drug-propaganda offensive (*CW, April 26, p. 75*) is getting under way. Last week, John T. Conner, president of Merck, warned the American Management Assn. of Russian attempts to gain political advantage by sending squads of medical emissaries to underdeveloped countries. At the same time, Conner told how Merck recently outmaneuvered the Soviets in building pharmaceutical plants in India.

And Russia's "humanitarianism through science" pitch won't be limited to drugs—insecticides, too, will be used in future East-West political

battles. At Western Agricultural Chemicals Association meeting, E. T. Collinsworth, Jr., president of Velsicol Chemical, detailed Soviet gains in production and export of agricultural chemicals. Collinsworth concluded that "our enemy is rapidly approaching our offensive capacity" and that the U.S. pharmaceutical and pesticide industries should mutually prepare a plan "for a humanitarian offensive on the underdeveloped countries of the world—this to be spurred by our government through tax incentive arrangement—to encourage the export, not only of our products, but also know-how and capital."

•

More than a billion pounds of lubricating greases and fluid gear lubricants were produced in the U.S. in '57, according to a just-completed survey of the industry by the National Lubricating Grease Institute. Survey results—which represent an estimated 85% of total U.S. production—tallied a near 582 million lbs. for lubricating greases and 474 million lbs. for fluid gear lubricants.

Three top items in the grease category are calcium, lithium, and sodium soaps, which account, respectively, for 37.61%, 27.58%, and 22.15% of total output.

•

U.S. Borax and Chemical's new boron plant, at Boron, Calif., has finally shaken off its engineering ills. Plagued by a raft of troubles ever since it was put onstream a year ago, the plant at long last is producing boron at a rate that meets the firm's present sales requirements.

A company spokesman says there are still a few minor problems to overcome, but "our basic problems have been solved and the plant is now working properly."

•

Just completed is the "world's largest continuous naphthalene distillation unit" at Allied Chemical's Plastics and Coal Chemicals Division plant, Philadelphia, Pa. The new unit—built by Badger Manufacturing of Cambridge, Mass.—is a modern replacement for older equipment; it will yield higher-purity material, permit more efficient operation, but will not boost the firm's naphthalene capacity, according to Allied.

SELECTED PRICE CHANGES — WEEK ENDING NOVEMBER 10, 1958

	Change	New Price
UP		
Molybdenum trioxide, chemical, dms., wks., basis Mo. content	$0.08	$1.48
Sodium molybdate, anhyd., dms., wks., frt. equald.	0.04	0.96
Vetiver, oil, Bourbon, cns.	0.25	$11.50
Zinc metal, prime western, slabs, E. of St. Louis	0.005	0.11
DOWN		
Chilean nitrate of sodium, 100 lb. bags., ton	$5.25	$44.50
Phenol, 90-92% (creosol 8-10%), non. ret. dms., frt. alld., E. of Rockies	0.005	0.175
Tankage, animal, feeding, 9-11% ammonia, N.Y., bulk, unit ton	0.50	6.25

All prices per pound unless quantity stated.

IN SLUDGE REGENERATION THE LARGEST FACILITY IS THE BEST!

To sulfuric acid sludge regeneration facilities, already the largest in the world, Stauffer has just added, at Hammond, Indiana, the world's largest Sludge Regeneration plant.

These facilities enable us to store and process a great volume of widely varying sludges. Unique methods of selection and blending combine quantities and varieties of sludge in compatible burning mixtures from which we recover water-white sulfuric acid to be delivered to the customer at any desired concentration.

Contract regeneration of sludges eliminates your problems of acid separation and concentration, air and stream pollution and maintenance of equipment.

Let's get together and discuss your sludge problem so we can make proposals regarding method of collection and shipment, regeneration point, rate and cost of recovery, etc. "If you can pump it, we can regenerate it!"

Do You have a Sludge of the following type?

Alcohol acid • Detergent sludge
Refinery sludges including:
High acidity low carbon sludge, High carbon low acidity sludge, Spent acids (including High water-low acidity)

Sludge Recovery and Virgin Sulfuric Acid Plants

Baton Rouge, Louisiana
Baytown, Texas
Fort Worth, Texas
Hammond, Indiana
Houston, Texas
Le Moyne, Alabama
Los Angeles, California
Richmond, California

Stauffer is the world's largest regenerator of Refinery Sludges and one of the world's largest producers of Sulfuric Acid.

STAUFFER CHEMICAL COMPANY

380 Madison Avenue, New York 17, New York

Prudential Plaza, Chicago 1, Illinois

636 California Street, San Francisco 8, California

824 Wilshire Boulevard, Los Angeles 17, California

Suite 300 South, 6910 Fannin Street, Houston 25, Texas
(Consolidated Chemical Industries Division)

THE MAN WITH THE ★ MULTIWALL PLAN

UNION
PACKAGING SPECIALIST
WALTER STALER

helps packer cut his Multiwall costs by $60,000

Union Packaging Specialist Walter Staler is an economy expert. His Multiwall customers can vouch for it. One of them—a Midwest packer—recently asked him to analyze his bagging operation. Savings to the company are expected to hit $60,000 a year!

The analysis, made through Union's 5-Star Packaging Efficiency Plan, showed that the basis weight of each bag could be reduced by 20#. Another recommendation: Standardize all Multiwall styles and sizes to improve inventory control and simplify purchasing.

Union Multiwall Recommendations are based on this 5-Star Packaging Efficiency Plan

- DESIGN
- EQUIPMENT
- CONSTRUCTION
- SPECIFICATION CONTROL
- PLANT SURVEY

Union also suggested simplifying bag printing by changing it from two-color on both sides to two-color on one side. And, switching from a full white to a less expensive semi-bleached sheet. These improvements, together with new work and copy created by Union's Art Department, resulted in a more attractive, more economical package.

This $60,000 savings story is another example of what can happen when Union's 5-Star Plan goes into action. Why not put it to work in your plant?

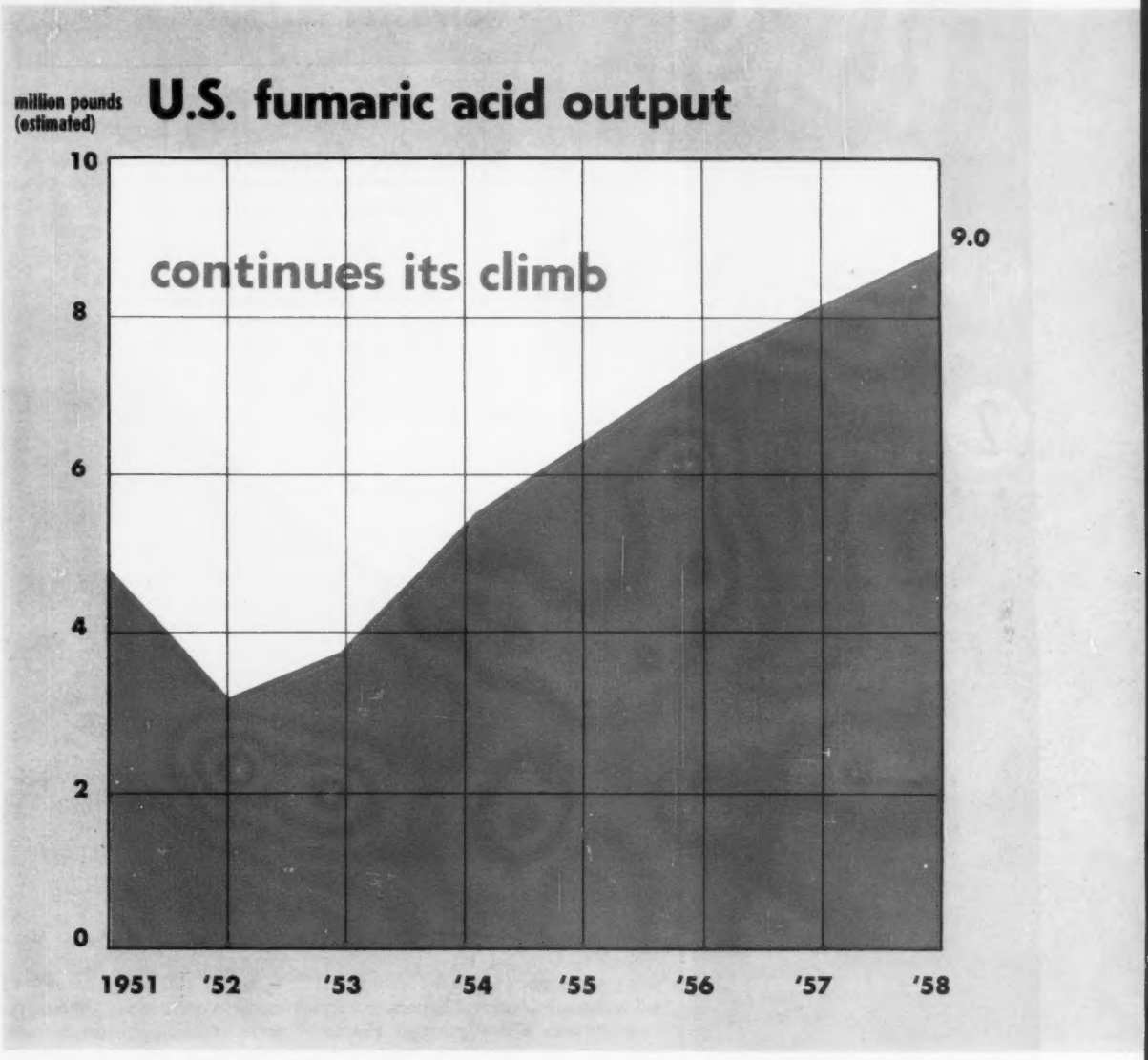
Better Multiwall performance through better planning

union camp ®

UNION'S PACKAGE ENGINEERING DEPARTMENT will study your Multiwall bagging methods and equipment and make appropriate recommendations, regardless of the brand of Multiwalls you are now using.

UNION MULTIWALL BAGS

UNION BAG-CAMP PAPER CORPORATION
233 BROADWAY, NEW YORK 7, N. Y.



But Where Does All the Fumaric Go?

This week, Pittsburgh Coke & Chemical will bring onstream its new, 2-million-lbs./year fumaric acid plant at Neville Island, Pa. And in the trade, this new capacity stirs new controversy over many aspects of fumaric markets.

One big controversy concerns production capabilities of U.S. makers. PCC will be smallest of the three producers—that much is certain. Because the firm's fumaric plant is based on a recovery process, its capacity can be estimated reasonably well. But capacities of other producers are harder to pin down; hence, it's almost impossible to set down with accuracy the nation's total fumaric capacity—although some trade observers conservatively put it at 15 million lbs./year.

Total capacity of National Aniline plants at Buffalo, N.Y., and Moundsville, W. Va., for example, depend on just how much maleic anhydride the firm wants to convert into fumaric acid; theoretically, therefore, fumaric capacity would be calculated on total conversion of National's maleic output; but in practice, this obviously would be a highly unlikely situation, and ratio of fumaric to maleic anhydride turned out by National depends entirely on current market demands.

Position of Bzura Chemical continues to be muddled

GREENS

4 Pure Chromium Oxides

and

2 Hydrated Chromium Oxides

Most stable of the green pigments. Unaffected by acids, alkalis, vehicles, and solvents. Non-fading.

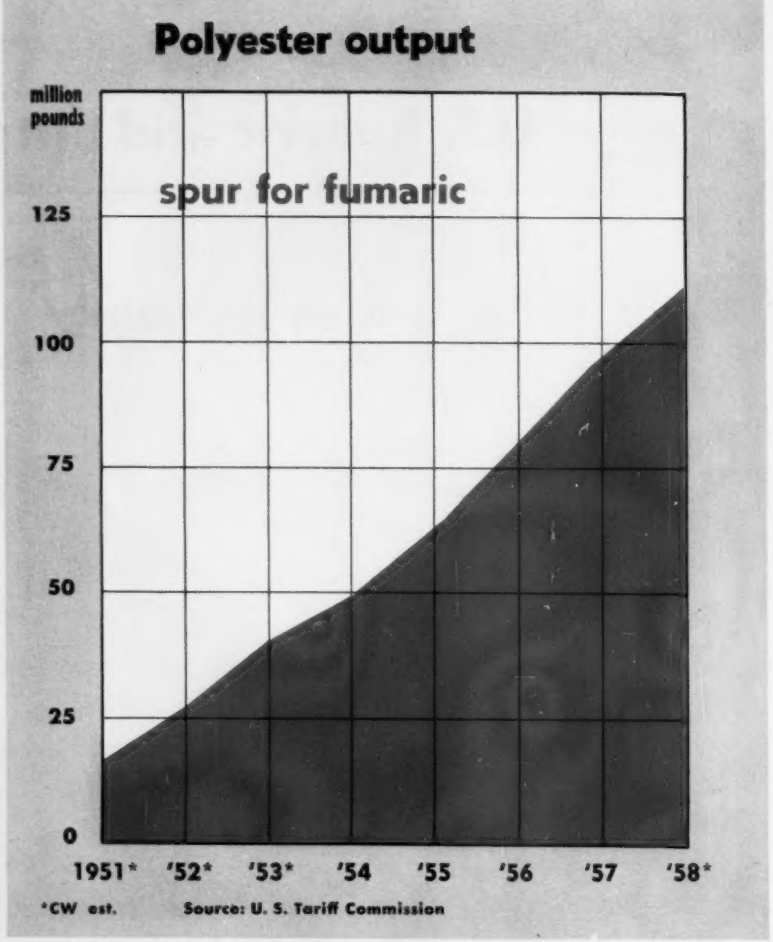
The 4 pure chromium oxides will withstand ceramic temperatures. Use them in applications requiring permanency—enamels, emulsion paints, rubber, plastics, floor coverings, roofing granules, building materials, etc.

Use the 2 hydrated chromium oxides for obtaining brilliant color and transparency in automotive finishes, high grade enamels and lacquers.

Your nearest Williams representative will be glad to provide you with full technical data and samples, or write Dept. 39, C. K. Williams & Co., Easton, Penna.

WILLIAMS
COLORS & PIGMENTS

EASTON, PA. • E. ST. LOUIS, ILL.
EMERYVILLE, CAL.



(*CW Market Newsletters, Oct. 25, Nov. 1*). Original reports that the firm will soon add to its estimated 4-5-million-lbs./year Keyport, N.J., capacity with a new plant in Puerto Rico must be discounted; equipment being assembled apparently is headed for citric acid production.

Plenty of Capacity: Bzura's shift to citric becomes understandable when it's pointed out that in any case the "minimum" U.S. fumaric capacity of 15 million lbs./year is substantially more than current needs—or production. Fumaric output this year is estimated at 9 million lbs., 9% more than the 8.3 million lbs. turned out in '57, almost three times the 3.2 million lbs. produced in '52.

Where's It Going? The growth in fumaric use brings up the industry's primary controversy about the acid: Where does it go? Fumaric experts, in agreement that total demand is growing at a satisfactory pace, disagree on end-use patterns—a second major controversy. About the only areas of agreement on the acid's use: that alkyd resin requirements are leveling off and that some 70% of '58 fumaric output will be channeled into manufacture of alkyd resins and unsaturated polyesters.

Main bone of contention is which of these two top outlets—alkyd resins or polyesters—is the more important. Some observers boost alkyd resins, say this outlet will use close to 45% of this year's fumaric output, that only 20% will go to polyesters; others insist that fumaric demand for alkyd resin use has fallen into second place and polyesters will take about 40% of fumaric available this year.

Fumaric's importance in production of alkyd resins depends on its use in

C. J. Wiley suggests some interesting properties and applications for

TRIALKYL BORANES

"colorless, liquid organoboron compounds, Triethylborane and Tributylborane are most useful as polymerization catalysts"

Q. Mr. Wiley, what is the current major interest in the Trialkyl Boranes?

A. The biggest potential for these compounds lies in their catalytic behavior. They promote the polymerization of such compounds as vinyl chloride, methacrylic esters, acrylic esters, and acrylonitrile. Tributylborane appears especially attractive as a catalyst for methacrylates and styrene. Recent Japanese and Russian papers on this use are very interesting. We have translated the Russian paper and have copies available for distribution.

Q. Are the Trialkyl Boranes stable in water?

A. The hydrolytic stability is very good in neutral, acid, and alkaline solutions.

Q. How stable are they in other media?

A. Oxidizing agents, including air, must be avoided, but otherwise boron-carbon bonds are very stable.

Q. What are the general solubility characteristics of Triethylborane?

A. Triethylborane and the higher Trialkyl Boranes are generally soluble in hydrocarbons, insoluble in water, and miscible with most organic solvents.

Q. Is it true that the higher Trialkyl Boranes are less pyrophoric than the Trimethyl and Triethyl compounds?

A. Yes. Pyrophoricity decreases as the molecular weight of the n-alkyl group increases.

Q. Can Triethylborane be used as a jet fuel?

A. Yes, because of its high flame speed, wide range of flammability, and high blow-out velocity.

C. J. Wiley, A.B., University of Pennsylvania,
M.S., University of Massachusetts,
Market Development Manager, Callery Chemical Company

Q. What Trialkyl Boranes do you expect to offer?

A. Right now, we can supply 20-ml samples and up to one-pound quantities of Triethylborane and Tri-n-butylborane. Plant flexibility at our new Lawrence, Kansas plant, now under construction, will eventually permit us to produce a variety of Trialkyl Boranes. One of these is Triisobutylborane. Meanwhile, we would be pleased to work with you to help develop any promising applications that you may have in mind.

Q. Are there any unusual aspects of Trialkyl Boranes that deserve attention?

A. Triethylborane and Sodium Hydride form a liquid adduct which should have some very interesting catalytic properties. Trialkyl Boranes synthesized from Diborane and terminal olefins can be oxidized to produce primary alcohols.

Q. Do you know of any other useful derivatives of the Trialkyl Boranes?

A. Some of the amine complexes of Trialkyl Boranes have been patented as diesel oil additives. They serve as cetane improvers presumably because they increase the flame speed of the fuel-air mixture. The complexes with higher amines should have the corrosion and sludge inhibition properties associated with these amines.

Write or phone for specific information on the Trialkyl Boranes.

Phone: FOrest 4-1130 TWX: Perrysville, Pa. 117

CALLERY
CHEMICAL COMPANY
PITTSBURGH 37, PENNSYLVANIA

announcing new improved performance in

HYDROGENATION

G-49, a new reduced, stabilized nickel catalyst in finely divided form, has been developed by Girdler Research and is now available in commercial quantities. Tests show it will provide better performance in certain applications than previously available types. There are no organic components and, being non-pyrophoric, it is safer to handle. Write for full details and sample of new G-49.

...another new development in

GIRDLER CATALYSTS

Standard and custom-designed to meet your needs

CHEMICAL PRODUCTS DIVISION
CHEMETRON CORPORATION
Louisville 1, Kentucky
Telephone: Spring 8-4421

CHEMETRON

CATALYST CATALOG... Full details on Girdler stock catalysts, experimental catalysts, customer services. Mail coupon for Catalog GC 2000.

GIRDLER CATALYSTS
CHEMICAL PRODUCTS DIVISION
P. O. Box 337
Louisville 1, Kentucky
Send free copy of Catalog GC 2000.

Company Name_____
Company Address_____
City_____ Zone____ State_____
Your Name_____
Position_____

two ways—as a modifying agent for phthalic resins and as a prime constituent of nonphthalic fumaric alkyds, i.e., fumaric acid-glycerol-rosin and fumaric acid-glycerol-pentaerythritol-rosin materials.

Total reported production of the nonphthalic fumaric types was a record 12 million lbs. last year—less than 5 million lbs. was produced in '52. Fumaric acid content in these alkyds is estimated at between 8-10%.

Demand for fumaric acid in the manufacture of phthalic-type alkyd resins is obviously on the downgrade.

Census Dept. figures for phthalic alkyd resin production were 456 million lbs. in '55, only 392 million lbs. in '56. Production in '57 was reported officially as 434 million lbs. Superficially, this appears to be a resurgence of demand for these resins. But the seemingly higher production in '57 is due to inclusion of more producers. If these additional reports are eliminated (and output of those reporting earlier years were compared with their later output), production would be only 380 million lbs. (It would, of course, be preferable to adjust production estimates of earlier years to the more complete figures for '57—but there's not enough information available to make this possible.)

How does this affect fumaric acid consumption? Since fumaric is added to only a small part of the phthalic alkyd produced, production trends of the modified forms need not necessarily reflect over-all decline of phthalic alkyd resin manufacture. Nonetheless, market observers say that as total phthalic alkyd production falls, production of the fumaric modified materials goes down with it.

Polyester Controversy: Industry experts are sharply divided about fumaric demand for polyester production. Those who view polyesters as the up-and-coming end-use for fumaric argue that "declining output of alkyd resins since '55 couldn't explain a 38% gain in fumaric acid output during the same period. The only dynamic growth seen in the fumaric acid market is in relation to polyester resin production."

Polyester resin output this year is expected to go as high as 105 million lbs., 10% more than in '57. But growth of the over-all polyester market doesn't automatically mean that fumaric acid demand is growing at the same rate: Reason: bulk of unsaturated polyesters are made from fumaric's competitor, maleic anhydride.

For economic reasons, maleic anhydride will doubtless continue to be the preferred material. On a per-pound basis, fumaric acid and maleic anhydride cost about the same. But fumaric acid contains some water (as an integral part of the molecule), hence takes more fumaric acid than maleic anhydride to accomplish esterification.

Despite the price handicap, fumaric has a place in the market because it imparts certain desirable properties to the resin, e.g., greater resistance to heat distortion—a characteristic much needed in some new uses of reinforced plastics.

Fumaric-containing polyesters are also used in molding compounds because they exhibit high-speed curing, low shrinkage, good heat resistance.

Rosin Adducts: About 1.3 million lbs. of fumaric acid will be used this year to make rosin adducts—resinous products made by treating rosin and terpenes with acid. This demand represents about 15% of total fumaric consumption.

This market is apparently growing rapidly. Total production of rosin and terpene adducts was 6.2 million lbs. in '57, over 50% more than the 4 million lbs. made in '55. Industry consensus is that the bulk of this material represents fumaric-type adducts.

One top outlet for rosin adducts is manufacture of steam-setting printing inks—a market in which fumaric adducts compete with maleic counterparts. Fumaric materials apparently have secured a good foothold in this end-use because they have higher melting points, are harder (less tacky) resins than maleic anhydride materials.

Steam-setting inks have gained wide acceptance in labeling of multiwall bags and food packages because they are fast-drying and odorless. And as more colored inks are used by the packaging industry for these purposes, demand for steam-setting inks should increase, boost demand for fumaric acid.

Other Outlets: Extent of other minor uses of fumaric acid vary widely. One industry source, however, estimates that some 3% of total fumaric production goes into making of dibutyl fumarate, which is used in copolymerization of polyvinyl acetate,

INTERNATIONAL'S

99+% MgO

Heard the news about *International* magnesium oxide? Highest purity ever achieved in carload quantities . . . purity you'd expect to find only in laboratory-controlled samples. And it's in the low price range!

Not to mention wide application. Among its uses: As a stabilizing and vulcanizing agent for rubber . . . in high-grade ceramic and glass formulations . . . for acid neutralization, electrical insulation, uranium ore treatment. It has demonstrated its worth in both high-purity magnesium chemicals and in low-sulfate, high-magnesium catalysts. What's more, *International* MgO has proved preferable to magnesia produced by conventional methods. And there's still more to come through *International* research.

A test sample of low-iron, low-lime *International* MgO in any of its three forms — powdered, pelletized or granular — is yours for the request. Please do — today.

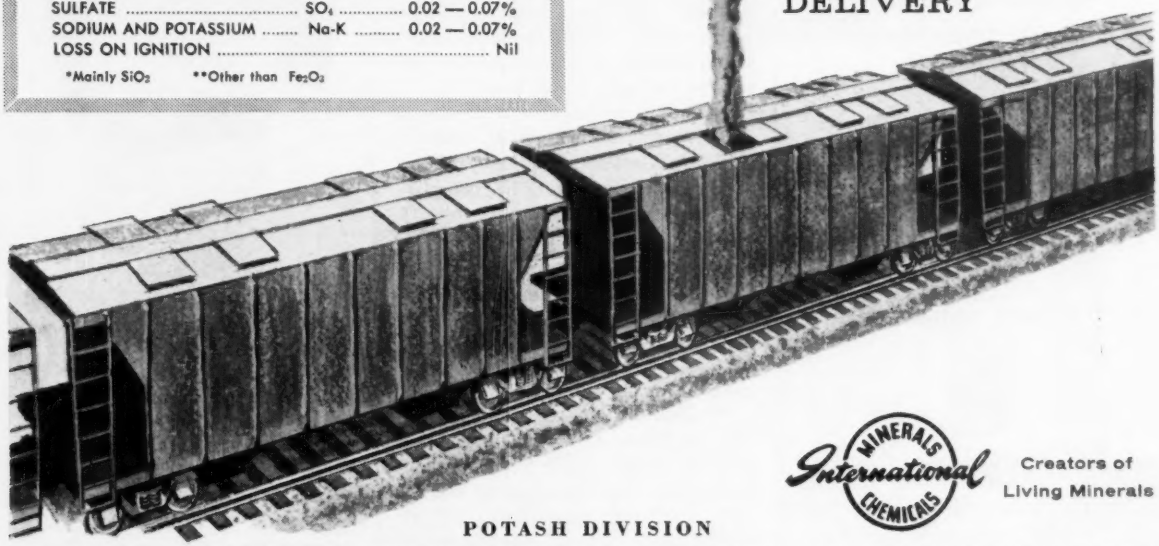
CHEMICAL SPECIFICATIONS

Chemical		*Purity Range*
MAGNESIUM OXIDE	MgO	99.40 — 99.70%
IRON	Fe_2O_3	0.03 — 0.06%
LIME	CaO	0.07 — 0.08%
ACID INSOL.*		0.02 — 0.10%
OXIDES**	R_2O_3	0.04 — 0.09%
BORON	B_2O_3	0.0025 — 0.015%
CHLORIDE	Cl	0.015 — 0.06%
SULFATE	SO_4	0.02 — 0.07%
SODIUM AND POTASSIUM	Na-K	0.02 — 0.07%
LOSS ON IGNITION		Nil

*Mainly SiO_2 **Other than Fe_2O_3

LABORATORY PURITY...

CARLOAD DELIVERY



Creators of Living Minerals

POTASH DIVISION

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

Administrative Center: Skokie, Ill. • Phone ORchard 6-3000 • 485 Lexington Ave., New York 17 • Midland, Texas

DEHYDOL

Non-ionic surface-active product on the basis of fatty alcohol ethylene oxide.
Many possibilities of application in chemical industry.

DEUTSCHE HYDRIERWERKE GMBH
Germany Düsseldorf

DISTRIBUTORS IN USA:
EAST COAST: Fallek Products Company Inc., 165 Broadway, New York 6, N.Y. MIDWEST: A. H. Carnes Co., 75 East Wacker Drive, Chicago 1, Ill. SOUTH: Ben R. Hendrix Trading Co., Inc., 305 Marine Building, 219 Carondelet Street, New Orleans 12, La. WEST COAST: The East Asiatic Co., Inc., 530 West 6th St., Los Angeles 14, Calif. The East Asiatic Co., Inc., 465 California Street, San Francisco 4, Calif. • The East Asiatic Co., Inc., 417 Equitable Building, 421 S. W. Sixth Ave., Portland 4, Oregon.

DISTRIBUTORS IN CANADA:
EAST COAST: Canerpa Limited, Suite 223, Drummond Building, 1117 St. Catherine Street West, Montreal. CENTRAL: Canerpa Ltd., 137 Wellington St. W., Toronto. BRITISCH COLUMBIA: The East Asiatic Co. (B. C.) Ltd., Marine Building, Vancouver 1, B. C.

DIMETHYL HYDANTOIN

DICHLORDIMETHYL HYDANTOIN
•
DIMETHYL HYDANTOIN FORMALDEHYDE RESIN
•
DIBROMDIMETHYL HYDANTOIN
•
MONOMETHYLOL DIMETHYL HYDANTOIN

GLYCO CHEMICALS CORP.
EMPIRE STATE BUILDING, NEW YORK 1, N. Y.
Esters • Dimethyl Hydantoin and its derivatives • other Hydantoins • Tetrines® • Synthetic Waxes • Emulsifying Agents • Sequestering Agents

in manufacture of water-emulsion paints.

Fumaric acid is also used to upgrade drying oils and varnishes, but this outlet is small and waning because of stiff competition from less expensive maleic anhydride. Small amounts of fumaric are used to acidulate foods, and go into such pharmaceuticals as effervescent tablets and powders and into paper sizing.

The controversy about major end-uses—alkyd resins or polyester resins—rates top listing, can't be resolved now because of lack of supporting evidence. But currently, polyester proponents appear to have the stronger case so far as future prospects are concerned. And though alkyd demands are gradually declining, there's good reason to believe that polyester uses will grow fast enough to more than offset these losses.

Aluminum Forecast

"Outlook for aluminum consumption in 1959 is good," according to E. M. Strauss, Jr., of Aluminum Co. of America. Shipments of the metal in '59 will be 15-20% higher than this year's estimated shipments of 1.75 million tons. This will put the '59 usage well above the '57 level, which was 9% above '58. Keys to the coming increases will be stepped-up use in highway and other construction—it will be about 485,000 tons in '59.

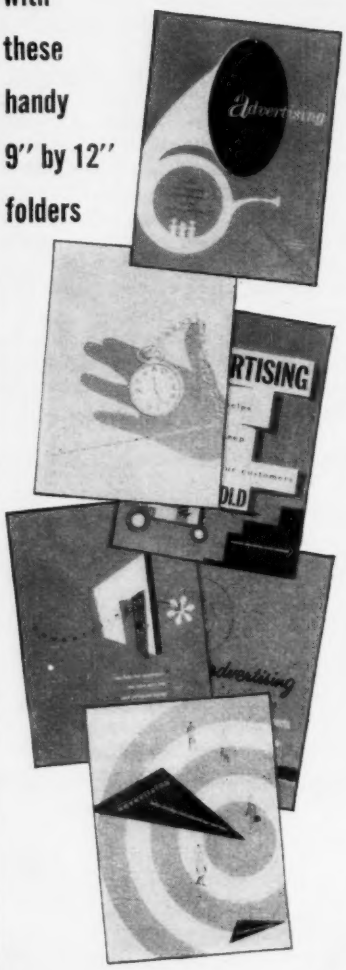
Also promising, according to Mr. Strauss, is the increasing importance of aluminum in the ground transportation industry. This will take 370,000 tons of the light metal next year.

Aircraft and missile use of aluminum will require an additional 120,000 tons. (Incidentally, according to the forecast, the new Boeing 707 commercial jet transport utilizes more than 23 tons of the aluminum, 77% of the craft's total airframe weight.)

Another 250,000 tons of the metal will be channeled for consumer durable goods next year, while the electrical and communications industry is expected to use 200,000 tons.

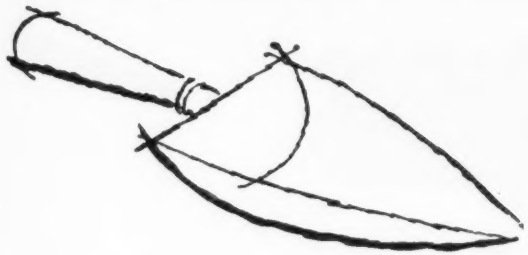
An additional 220,000 tons will be fabricated into a variety of nonelectrical machinery, while containers and packaging, "one of the sharpest growth areas," will take more than 110,000 tons of the light metal. Miscellaneous uses will take an added 300,000 tons of aluminum next year.

Here's how you can
MERCHANDISE YOUR ADVERTISING
with these handy 9" by 12" folders



Keep your sales, management and distribution people informed on your advertising. Circulate preprints, reprints, schedules and other material in these folders, and make your advertising dollars work *over and over* for you.

Write for illustrated folder and price list
Promotion Dept. . . . Room 2700
McGraw-Hill Publishing Co., Inc.
330 West 42nd Street, New York 36, N. Y.



this much Tetrasodium...

Many leading brands of powdered soap contain 10%-15% Victor *tetrasodium pyrophosphate*. That's one reason why it's almost child's play on wash day to turn out all types of clothes clean as a hound's tooth.

Due to its synergistic action, Victor TSPP enhances the cleansing action of soap . . . literally softens hard water and also helps prevent iron stains. In addition, it's gentle on busy hands.

And here's a gentle hint if you're wondering what Victor phosphates, formates, and oxalates can do to clean up some of *your* problems: just send for a sample of the chemical you want to investigate. We'll have it on the way to you before you can say, "It *pays* to see Victor." Write on your company letterhead to: Victor Chemical Works, Box 572, Chicago 90.

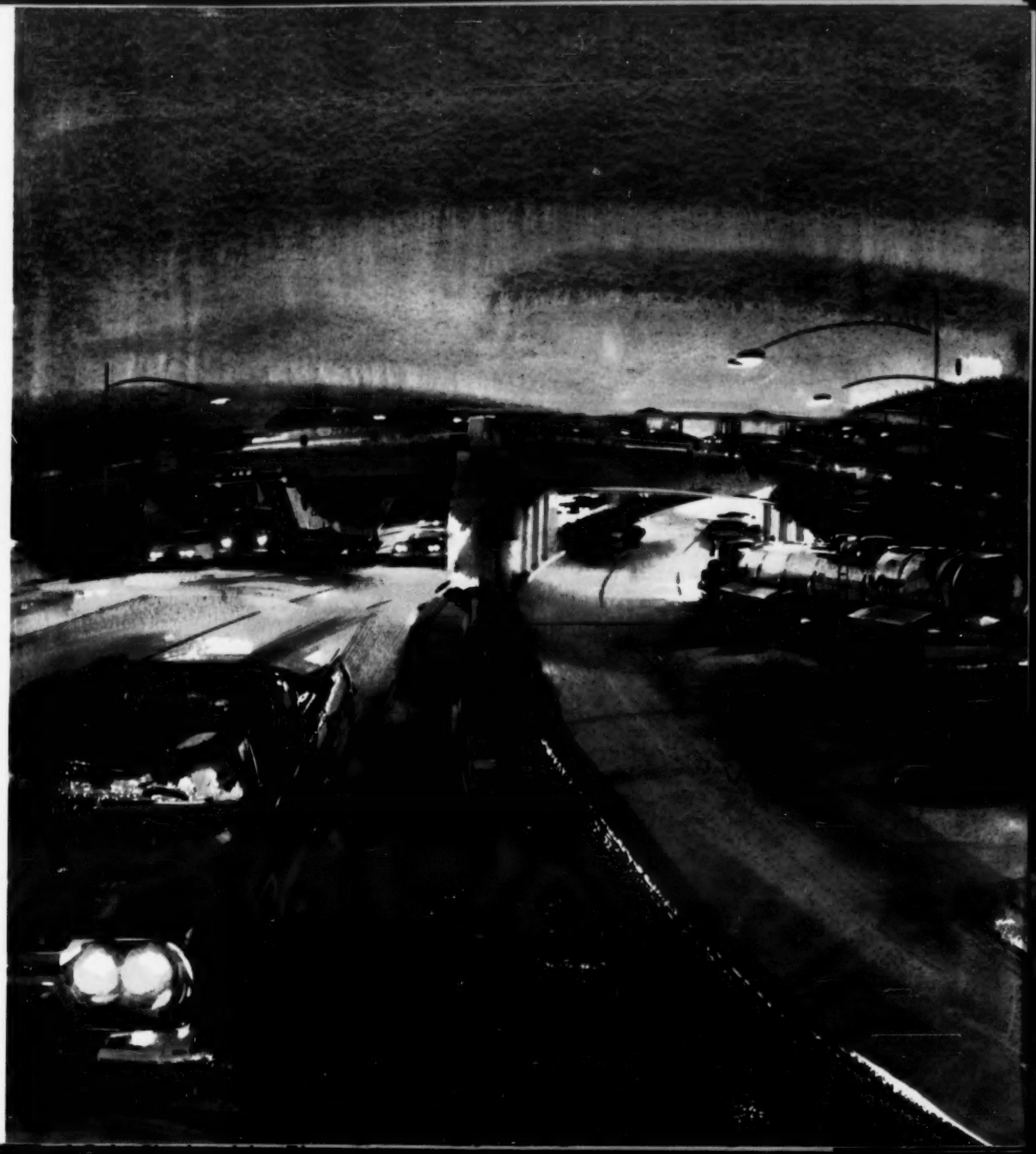
VICTOR
Dependable Name in
Chemicals
for 60 Years

this much Oxalic...

Add heavy duty Victor *oxalic acid* to automobile radiator cleaning compounds and rust and iron scale cease to take their toll as trucks and cars roll along the road.

Most leading producers of radiator cleaners use Victor oxalic as an ingredient. They know this versatile Victor chemical helps keep cooling systems *running* cool . . . that it dissolves and washes out rust *without* injury to metal and rubber parts.

How are the sales of your products rolling along? Perhaps a Victor phosphate, formate, or oxalate can help speed them through production . . . make them real cool performers in today's market. To find out how Victor chemicals can help, give us the high sign . . . tell us what you want and a sample will be on the way before you can say, "It *pays* to see Victor." Write on your company letterhead to: Victor Chemical Works, Box 572, Chicago 90.



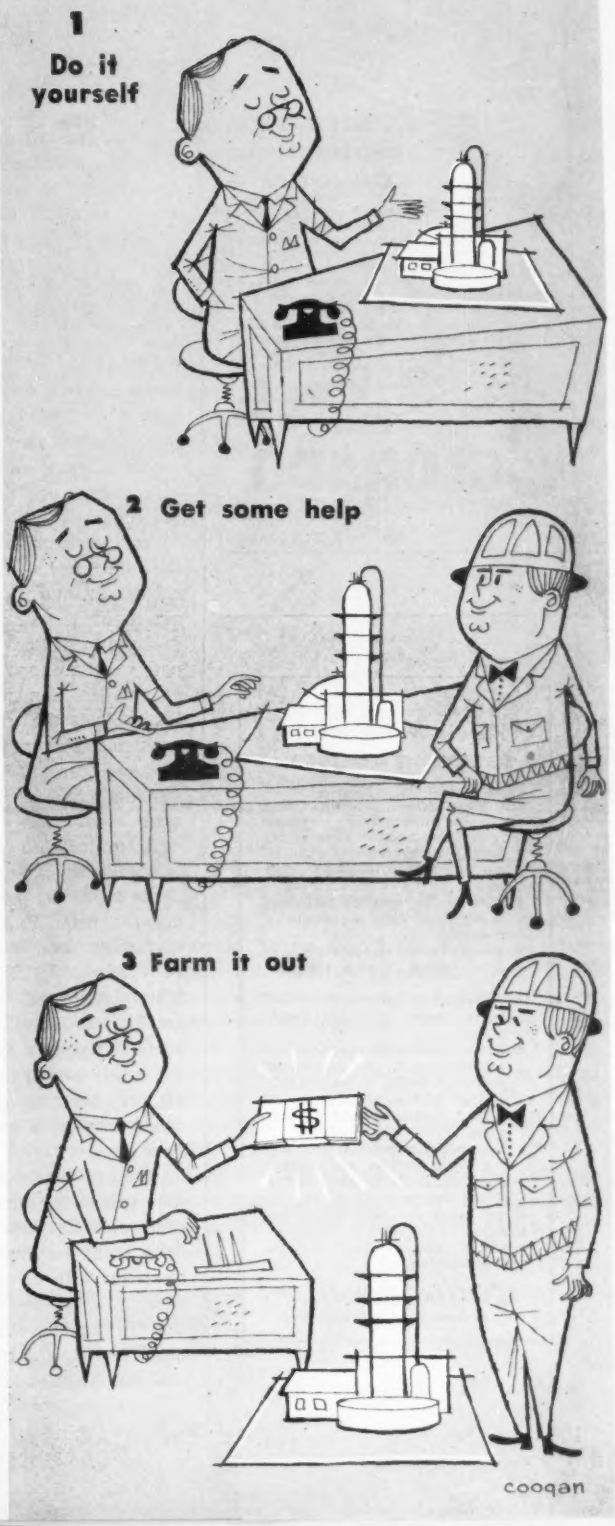
Which Way Is Best for Your Engineering?

The current business recovery is posing this recurrent question to chemical process company executives busy dusting off previously postponed building and modernization projects: Who should do our engineering? The three general approaches—do it all internally, contract out part of the job or buy the whole project on a turnkey basis (right)—are all used in the CPI. CW's latest survey spotlights the changing factors affecting today's selection of the best course.

The concrete dollar savings of doing the job internally is the first fact to flag the attention of chemical management. But many other factors go into the decision, often swinging it to another alternative. Some of these considerations:

- Size of the job—many firms have a rule-of-thumb about how large a job they want to handle internally, with contracted aid on the large projects.
- Manpower—even if no single large project is in the works, increased routine work may overload the company's engineering staff, necessitate outside help.
- Time—a rush project may make outside help necessary, although another view is that the company can get off to a faster start on its own.
- Specialization—either the company itself or an outside firm may have specialized experience in a given type of project, particularly in the case of patented processes.
- Secrecy—if the company has a secret process, there is some reluctance to bringing in outside engineers. But this point is not generally considered overriding, since nondisclosure clauses and ethics of reputable consultants both offer good protection.
- Training—a valuable by-product of inside engineering is the development of the company's own team of consultants and managerial talent with a broad knowledge of the company's technical operations.
- Familiarity vs. objectivity—a two-sided coin is the issue of whether it is more valuable to have the job done by company engineers close to the project, who know the details of the company's experience in a particular development, or to call in outside men who have a fresh, possibly unconventional approach.

A Bigger Bill: Companies that engage outside help must, of course, pay more than if they did their own work. As one company says, "Assuming equal technical competence, it is less expensive for a company to perform its own design services because it eliminates the contractor's profit, sales costs and other adminis-



NEW!
EXECUTIVES!
..."SITE-SEE" INDUSTRIAL COLORADO
Executive's portfolio without obligation. A concise, up-to-the-minute presentation of Colorado's wealth of Industrial opportunities. Complete data on Colorado's booming expansion, vast new markets, new space-age minerals, resources, plus Pleasant Living ... the Industrial bonus of Colorado's magic climate. Discover today why growing industries are "Site-Seeing" Colorado. Inquiries remain confidential.
Send for your portfolio of Industrial Colorado
COLORADO
DEPARTMENT OF DEVELOPMENT
#9 STATE CAPITOL
DENVER 2, COLORADO

Need A Versatile Thermally-Reversible GELLING AGENT?

SeaKem Gelling Agents produce firm water gels at low concentrations — as little as 1.0% — which provide these special advantages:

- Setting temperatures can be varied from refrigeration range to 150°F.
- Gels can be remelted and reset many times. They are thermally reversible.
- Remelt temperatures are about 30°F. above setting temperatures.
- Character of gel can be varied from "short" to highly elastic texture.
- Discontinuous gel (broken up gel structure) has thixotropic properties useful in many applications such as stabilization of foams, emulsions and suspensions.
- Has unique property of complexing with proteins and certain other materials to make highly useful systems.

Write today for fully descriptive technical literature on SeaKem products. Experimental samples also gladly furnished.

SEAPLANT CORPORATION
63 David St., New Bedford, Mass.

trative expenses." But technical competence is only one of the factors that could lead to improvement of the over-all economy of the project.

Several chemical companies mention "multimillion-dollar" projects as the most likely to force them to look outside for engineering help. Most prefer to handle all small jobs, but many realize they are not staffed to cope with the large ones.

The most notable exception is Du Pont, which maintains vast engineering and construction staffs, handles all its own work. More common, though, is the company that prefers to do as much as it can, considers a contractor for projects that cost over a certain amount, say $500,000 or $1 million.

Keep a Stable Staff: The importance of a stable staff is emphasized by a number of firms. As Neil Ross, engineering manager of Dow Chemical Co.'s Pittsburg, Calif., operation puts it, "There is obviously little point in trying to maintain an army of engineers and draftsmen to handle the occasional peak load."

Another company believes that a staff free from fluctuations is a decided advantage over outside engineering firms. A stable group is likely to have a better grasp of past experience than one that grows larger or smaller, depending on the work load. And the personnel relations problems inherent in trying to match the engineering department with a varying schedule should be carefully considered.

A project on any kind of accelerated schedule may leave little doubt as to the necessity of contracting for help. Engineering firms are specialists in "crash engineering" (*CW, Sept. 7, '57, p. 37*) and can often call broad resources into play quickly. In this kind of situation, particularly, they are anxious to have the whole job in their hands because of the communications snags that could develop if more than one firm were involved.

Another viewpoint, however, holds that calling in outsiders slows down the project because time is needed to brief them on the job and familiarize them with company needs. Engineering firms counter that they are rich in engineering talent that can quickly grasp the technical aspects of the job. They say continued dealings with a firm affords an insight into the company's problems.

Monsanto Chemical Co. tries to do rush work itself for another reason: "We prefer to have our own people make 'calculated guesses'." And another company cautions that engineering companies should be carefully checked for ability to meet required deadlines. It believes the penalty clause commonly used to guarantee this fails to serve the purpose. And it says the usual $1,000/day penalty isn't enough to make up for losses in earning power occasioned by idle facilities.

Specialization Figures In: Two types of specialization have a large effect on who should engineer a job. In one case, a company may have a proprietary process it has been working on for years. If the process is unusual, the company itself may be the only qualified group to engineer any changes or additions. If the firm needs additional aid because of the size of the project, it is generally careful to use contractors that are not also in the process business.

The other case is that in which the outside firm is obviously more qualified to do the work, either because it has a special process or packaged plant of its own for sale or because it has vast experience in a nonchemical field. Monsanto is one of several companies that says it prefers the turnkey contract when it is buying an outside firm's process. Max Spealman, Western production manager for Stauffer Chemical Co., agrees that an outside firm with specialized knowledge should be called in to do the entire job, but says that such instances are rare.

Routine chemical facilities, such as sulfuric acid plants, are often contracted for on a turnkey basis, as are various kinds of nonchemical engineering. For instance, one company commonly contracts out the bulk of its civil engineering work. And even Du Pont subcontracts for specialized work on a local basis—for such things as grading and high-caliber architectural work for specially prominent buildings.

A company with Latin American operations points out that architecture is much different there; architects there give buildings a national flavor. Even piping and electrical work are sometimes contracted for

Special Big Tops for Caustics, Open Tops for Brine

. . . part of major expansion at Port Neches, Tex. petrochemical plant at Jefferson Chemical. . . . special Graver cone roof design eliminates corrosion maintenance problems.

Conventional cone roof construction would not do for the two largest tanks above. Interior roof structurals could not be protected against corrosion from the 50% caustic to be stored. And so Graver designed the roof structurals on the outside, leaving the interior smooth for easy application of a corrosion-resistant coating.

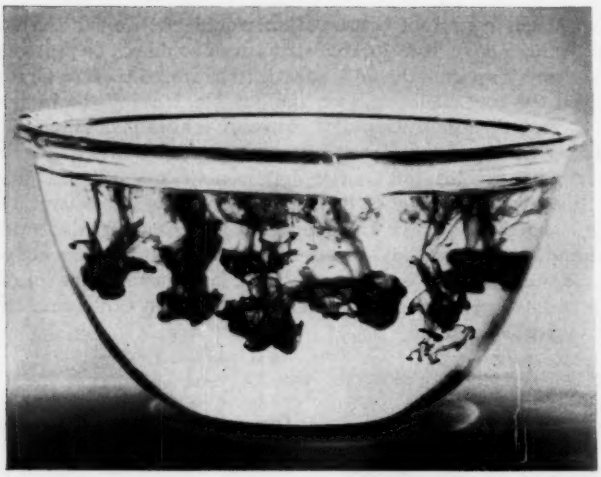
Three tanks of this special design were built by Graver to answer the corrosion problem at Jefferson Chemical under order from Singmaster & Breyer, Inc., New York, Designers and The Fluor Corporation, Ltd., Los Angeles, Constructors. Also fabricated and erected by Graver were the eight open-top tanks above, used for slurries of raw and treated brine, for treating brine for cell liquor storage, as well as seven smaller open-top tanks and two solid nickel tanks.

GRAVER TANK & MFG. CO., INC.
EAST CHICAGO, IND.

GRAVER®

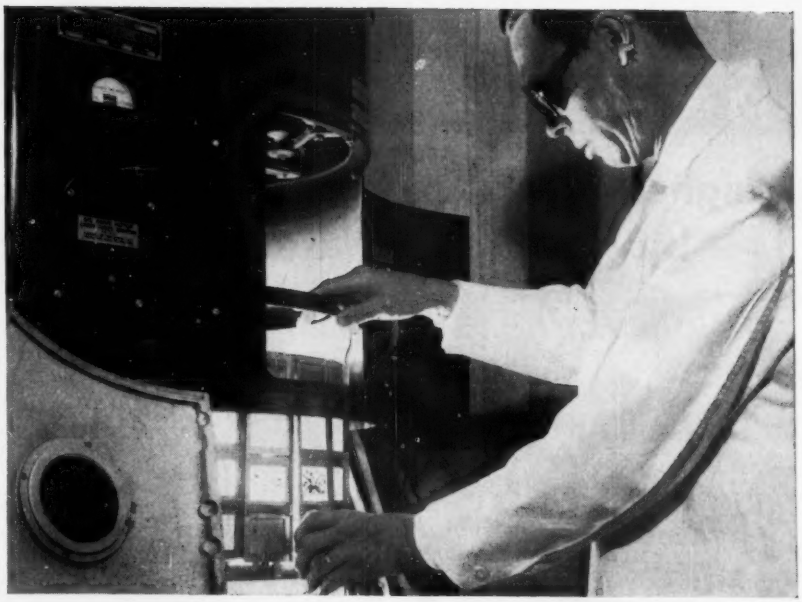
Plants and Offices Across America

Life on the Chemical Newsfront

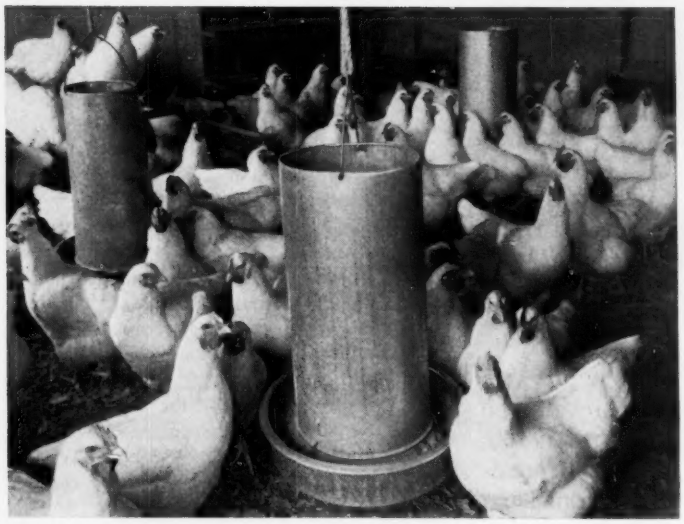


LEATHER COLORS OF UNUSUAL LIGHTFASTNESS are produced by CALCOFAST® *dyes*, which are also outstanding for levelness, clarity and transparency. Termed "metallized dyes" because of the introduction of a metal into the molecule, CALCOFAST dyes produce a full range of medium and pastel shades on leathers tanned with basic chrome sulfate or a combination of the chrome compound and synthetic tanning materials. Applied in the same manner as acid and direct dyes, CALCOFAST dyes are soluble in water and compatible with commonly used anionic and non-ionic wetting agents and water-soluble finishes.
(Organic Chemicals Division)

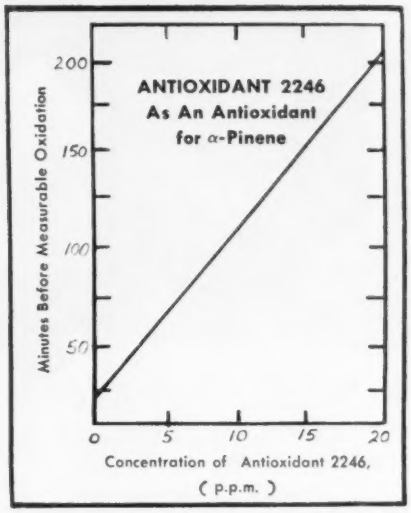
WHEN METALLIC IONS CLOUD YOUR PRODUCT, the trouble can often be cleared up with CYQUEST® 40 *sequestering agents*. Metal ions, present in only a few parts per million, can spoil color, cause turbidity, catalyze degradation reactions and otherwise affect product quality. CYQUEST 40 sequestering agent seeks out such di- and tri-valent metal ions and binds them securely as stable, soluble chelates. By isolating these ions, CYQUEST 40 eliminates problems in processing, shipping, storage and use of chemical products. **(Industrial Chemical Division)**



FADE-OMETER TESTS of polyvinyl chloride, as well as exposure tests conducted in Florida and Arizona, demonstrate the effectiveness of Cyanamid's CYASORB* *light absorbers*. Use of small percentages of CYASORB UV 24 in PVC, for example, prevents discoloration, embrittlement and other forms of degradation usually caused by outdoor exposure. Because CYASORB UV 24 absorbs strongly in the ultraviolet range and is unaffected by the absorption process, it gives long-lasting protection to UV-sensitive materials.
(Organic Chemicals Division)



NEW PROTECTION FOR LAYING HENS is provided by ARZENE* arsenosobenzene, the first coccidiostat to be accepted by the U. S. Food and Drug Administration for use with laying hens as well as broilers. ARZENE is being marketed by Cyanamid to feed manufacturers as a stable premix which is especially effective against the parasites that cause coccidiosis. Continuous feeding of ARZENE enables birds to develop immunity against troublesome species of coccidia. Extensive trial work shows the compound also stimulates growth and improves feed efficiency. **(Agricultural Division)**



GRAPH SHOWS EFFECTIVENESS of Cyanamid's ANTIOXIDANT 2246® as an oxidation inhibitor. Tests were conducted with 200-gram samples of α-pinene at 70° C with a continuous stream of oxygen bubbling through them. The induction period required before oxidation begins varies linearly with the concentration of antioxidant. Similar data indicate the usefulness of ANTIOXIDANT 2246 in other fats and oils, paraffin wax, petroleum products and as a polymerization inhibitor in chemical processes. Further data on chemical and physical properties and test results are available on request.
(Market Development Dept.)

*Trademark

CYANAMID

AMERICAN CYANAMID COMPANY
30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

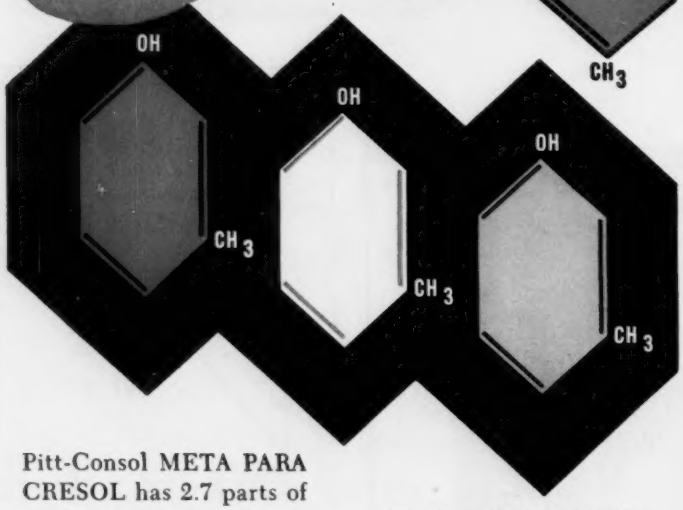
For further information on these and other chemicals, call, write or wire American Cyanamid Company

PITT-CONSOL

META PARA CRESOL

higher in META content by

3 to 1



Pitt-Consol META PARA CRESOL has 2.7 parts of meta to every one of para . . . more meta cresol (over 70%) than most mp cresols on the market today! Offered in 2° and 3° grades of high purity and closely controlled uniformity, this phenolic product is unique . . . shows great promise for new phenolic resin applications.

Pitt-Consol META PARA CRESOL is part of a full line of high quality phenols, cresols and cresylic acids produced by our continuous extraction process. Whether you seek high meta content in mp cresols or high quality in any cresylic acid, look to Pitt-Consol first.

Consult our insert in Chemical Materials Catalog or write for your file copy.

PITT-CONSOL
CHEMICAL COMPANY
191 DOREMUS AVE., NEWARK 5, N.J.

PITT-CONSOL CHEMICALS

A SUBSIDIARY OF CONSOLIDATION COAL COMPANY

by Reichhold Chemical Industries, another firm that generally prefers to do its own design and construction work.

Secrecy Less Important: Although some firms say they prefer to keep secret process information completely within the company, most agree that this point should not be overevaluated. Reputable engineering firms themselves have a lot to lose if any leak in confidential process information should be attributable to them. And nondisclosure clauses may be used to build secrecy right into the contract. The only point of hesitation showed by one firm was that employees of engineering firms do move to other companies themselves. But it went on to say, "We have never had any reason to suspect violation of confidence in any job we have assigned to an outside engineering contractor."

If the job is done internally, points out one firm, all the experience and know-how generated in the process are kept within the company. This is a plus to the department's serving the chemical company as a valuable training ground.

Pros and Cons: The widest division of opinion appears to be on the question of whether it is better to assign engineers close to a project or outside people who are far enough from it to give the company a more objective appraisal. On one hand, it is clear that a large company's communications channels can be coped with more easily by someone within the company. And the knowledge of past experience with an idea, and possibly past failures, gives an apparent advantage to the engineer closest to the problem.

On the other hand, some engineering firms point out that preoccupation with past troubles might cloud a company engineer's vision, cause him to overlook new avenues of approach. And another point: company people may be affected by the position or personality of the project's champion, mix emotional intangibles together with business.

Both sides have merits; the particular case will determine which is more applicable. The final decision on who should do the engineering will be made up of the answer to this controversy together with careful estimation of all the factors described.

Almost everybody who brings problems to Bemis (where flexible packaging ideas are born) likes the flexible solutions that Bemis creates out of 100-year experience, skill and just plain flexible imagination.

40¢ vs. $1.25 . . . WHAT A SAVING!—Here's a typical experience with Bemis Waterproof (laminated-textile) Bags: A shipper of alumina (which must be protected against moisture) needed a tough, economical container for export shipments. Bemis studied the requirements, delivered bags costing about 40 cents each compared with $1.25 for the drums previously used. Bemis Waterproof Bags are the *toughest shipping bags made.*

PHOTO BY WORLD WIDE PHOTO

Bemis

BEMIS BAG CO.

Bemis may already be making the better package you need. Call, write, or ask your Bemis man.

A clean, slow burning candle demonstrates the quality and stability Century Brand Stearic Acid puts in your product.

SPOTLIGHT QUALITY...

with Harchem's Century Brand Stearic Acid

Good ingredients make good products. Whether you make lipsticks, lotions or creams, pharmaceuticals, soaps or candles, the quality of stearic acid you use will determine the quality and the ultimate sales success of your product.

Candles are a good case in point. Slow burning candles must burn cleanly, white candles must not yellow and colored candles must hold their true shade. These qualities cannot be realized without the color and oxidation stability found in Century Brand Stearic Acid.

In addition to single, double and triple pressed grades of Stearic Acid, Harchem makes other animal and vegetable fatty acids. Write on your company letterhead for a copy of our new publication that gives the specifications of all these Century Brand Fatty Acids. Ask for Bulletin H-45.24.

HARCHEM® CENTURY BRAND

HARCHEM DIVISION

WALLACE & TIERNAN, INC.
25 MAIN STREET, BELLEVILLE 9, NEW JERSEY
IN CANADA: W. C. HARDESTY CO. OF CANADA, LTD., TORONTO

PRESSURE SENSITIVE INSTRUMENTS

Accuracy to 1 part in 1,000
Sensitivity to 1 part in 10,000
Ranges from absolute zero to 500 psig

For measuring absolute, differential, vacuum or gage pressure.

For Instrument data and catalog write Dept. A-120.24.

WALLACE & TIERNAN INCORPORATED
25 MAIN STREET, BELLEVILLE 9, NEW JERSEY

ENGINEERING

Rip Switches to Sulfate

Latest twist in resin-in-pulp (RIP) processing of uranium ore is a new sulfate elution operation recently put onstream by Mines Development, Inc., at its Edgemont, S.D., mill. The switch from conventional nitrate elution to the novel sulfate route is paying off in a number of operating improvements, plus higher-quality uranium concentrate.

The Edgemont mill has a capacity of 400 tons/day of ore (equivalent to 1,800 lbs./day of U_3O_8 concentrate). After the ore has been leached with acid, uranium is extracted by RIP exchange with anion resins, eluted from the loaded resin and precipitated as concentrate. For the past two years, Mines Development employed nitrate elution of the loaded resin. The switch to sulfate followed a decision to recycle clear solution from a tailing pond. This move was aimed primarily at conserving water, but the new method also prevents contamination of the Cheyenne River by residual compounds in the tailing solution.

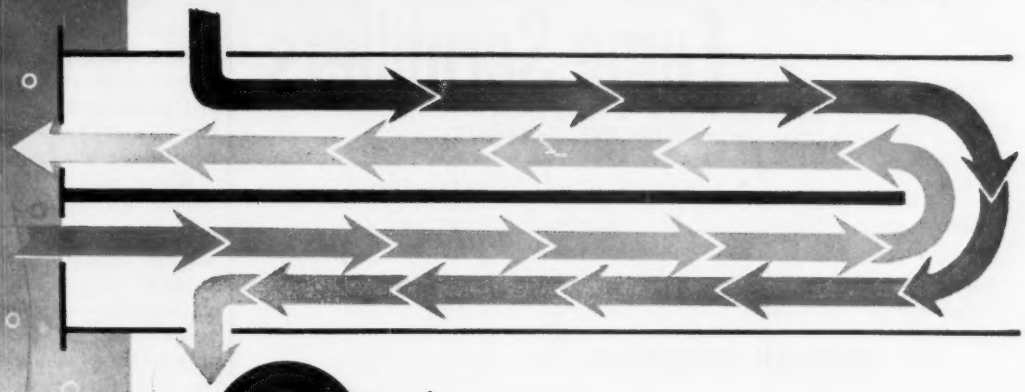
H. L. Hazen (Denver), consulting metallurgist for Mines Development, considered a variety of solutions, concluded that the conversion to use of sulfate elution would be the most economical and most feasible. Here are the details on how it works:

Uranium is eluted from the loaded resin with 9% sulfuric acid. The resulting uranium-pregnant acid solution is then fed into a solvent extraction circuit where the uranium is transferred into an organic phase consisting of 85% kerosene, 10% di-2-ethyl phosphoric acid and 5% tributyl phosphate. After solvent extraction, about one-third of the strong-acid barren solution is recycled to the initial acid-leach circuit to dissolve uranium from the ore, the remaining two-thirds is returned to the elution circuit.

In the subsequent stripping operation, uranium-pregnant organic liquors are stripped with 10% sodium carbonate solution. Insoluble carbonates (chiefly oxides of ferric iron and titanium) precipitate out. The soda ash liquor is then clarified by filtration for final precipitation of the uranium concentrate.

In addition to conserving the mill's water supply, says Hazen, sulfate elu-

Is multi-pass shell construction practical in heat exchanger design?



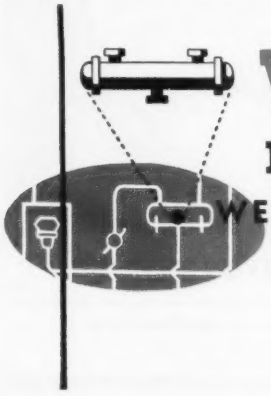
Question:
Are the design features of multi-pass shell construction sound and applicable for process heat exchangers?

Answer:
Yes, *if properly designed and applied*, multi-pass shell heat exchangers effect substantial savings in initial installation costs. Western has been successful with multi-pass shell construction because . . .

. . . of a thorough knowledge of the applications for which each Western heat exchanger is designed. Consequently, Western two-pass shell exchangers are recommended and specified only for those applications where they are ideally suited.

Western multi-pass shell exchangers have achieved satisfactory service for our customers at far lower investment cost. By reducing the number of shells required to handle specific applications, the Western multi-pass shell exchanger does the work of two exchangers at substantially lower initial cost.

A Western representative will gladly advise you as to the possibility of applying two-pass shell construction to your next heat transfer requirements.



WESTERN
HEAT EXCHANGERS
WESTERN SUPPLY COMPANY
P.O. Box 1888 – Tulsa, Oklahoma

CROLL-REYNOLDS

Jet-Venturi

Fume Scrubbers

minimize odors

clean and purify air and other gases

without fan or blower

ADDITIONAL APPLICATIONS

to recover valuable solids

use as Jet Reactors

SEND TODAY FOR COMPLETE CATALOG

Croll-Reynolds CO., INC.

Main Office: 751 Central Avenue, Westfield, N. J.

New York Office: 17 John Street, N. Y. 38, N. Y.

CHILL-VACTORS • STEAM-JET EVACTORS • AQUA-VACTORS • FUME SCRUBBERS • SPECIAL JET APPARATUS

LUPERSOL DDM

60% METHYL ETHYL KETONE Peroxide in DIMETHYL PHTHALATE HAS LONG TERM STABILITY

Storage tests of LUPERSOL DDM show no appreciable loss of assay after 1½ years of storage at ambient (20-80°F.) temperatures.

LUPERSOL DDM is most useful as a catalyst for "room temperature" curing of polyester resins.

LUPERSOL DDM is readily soluble in most synthetic resin monomers and is a convenient non-viscous liquid catalyst for the polymerization of polyester and vinyl type resins.

Write for Data Sheet

LUCIDOL DIVISION

WALLACE & TIERNAN INCORPORATED

Dept. 3, 1740 MILITARY ROAD

BUFFALO 5, NEW YORK

tion is also yielding a more valuable product. The yellow cake now produced by the mill assays 83% U_3O_8, compared with 75% for the former product. Reason for this improvement, explains Hazen, lies in the use of both anion exchange (RIP circuit) and cation exchange (solvent extraction circuit). Result: most of the impurities are eliminated.

Added cost of the sulfate elution system was chiefly for new units (mixer-settlers, holding tanks and pumps) required in the solvent extraction circuit. All construction materials are polyvinylchloride and wood; stainless steel is used for pumps. Other additions required by the new circuit: water tower, fire sprinkling system and new tailing pond.

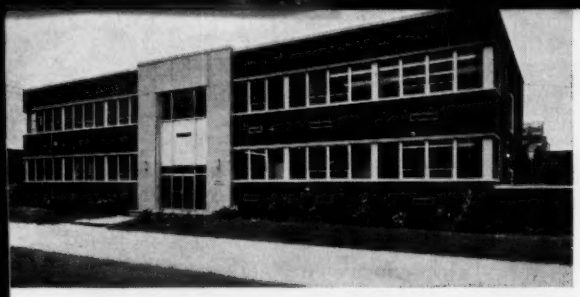
Alternate systems considered—but rejected—by Hazen include:

- Chloride elution, would have required using Hastelloy B, was, therefore, considered too expensive.
- Carbonate elution with soda ash, vetoed because reaction between carbonate and acid generates carbon dioxide, which leads to rapid breakdown of resin.
- Recovery of nitrate ion from resin by sulfate elution, rejected because it would have decreased plant capacity. (Nitrate itself can't be recycled from the tailing pond because it would strip uranium from the resin, thereby nullifying the entire process.)

Hazen's biggest worry is whether the 316 stainless steel used in the new system will stand up under the extremely corrosive service. It's still too early to tell what the eventual problem will be, says Hazen, but to date it appears that corrosion is very slow. His summation of the switch to sulfate: "So far, it has been working perfectly, is easy to operate and has been satisfactory in every way."

Cutting Drawing Costs

Haloid Xerox Inc. (Rochester, N.Y.) is currently showing off an impressive array of microfilming, card-tabulating and xerographic printing equipment that have been brought together in a new system designed to simplify the job of producing, copying and storing engineering drawings. Heart of the system is Haloid's Copyflo 24 continuous printer that reproduces drawings from unitized microfilm (individual



Research Laboratory

for Improved Production

of esters, amides, ketones, peroxides,

ureides and many other acid derivatives

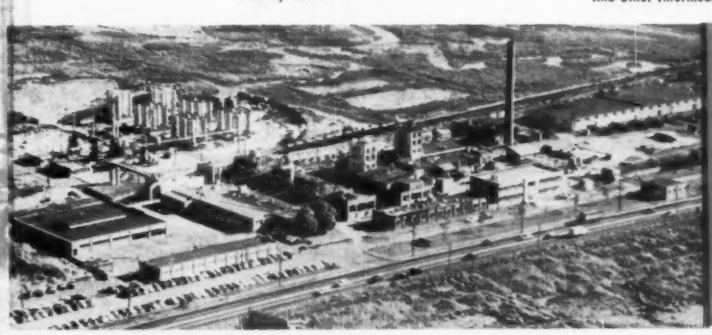
Available carload, less carload

ACID CHLORIDES

Acetyl Chloride
Azelaoyl Chloride
Butyroyl Chloride
Caproyl Chloride
Capryloyl Chloride
Cinnamoyl Chloride
Isobutyroyl Chloride
Lauroyl Chloride
Myristoyl Chloride
Oleoyl Chloride
Palmitoyl Chloride
Pelargonyl Chloride
Phenylacetyl Chloride
Propionyl Chloride
Sebacoyl Chloride
Stearoyl Chloride
and
others, made to order

INTERMEDIATES

Acetaldehyde Ammonia
Acetophenone
Anisic Aldehyde
Anisyl Acetone
Anisyl Alcohol Tech.
Anisyl Chloride
Anisyl Cyanide
Benzalacetophenone
Benzhydrol
Benzhydrylamine
Benzhydryl Chloride
Benzophenone Tech.
Benzyl Alcohol Tech.
Benzyl Cyanide
n-Caproic Acid
p-Chlorbenzophenone
p-Chlorbenzhydrol
p-Chlorbenzhydryl Chloride
p-Chlorbenzyl Cyanide
Dibenzyl Ether
Dicyclohexyl Carbinol
Dicyclohexyl Ketone
p,p'-Dimethoxybenzophenone
Diphenyl Acetone (unsym)
Diphenyl Methane
Ethyl Formate Tech.
Ethyl Phenylacetate
beta Ionone
Isovaleric Acid
p-Methoxy Phenylacetic Acid
Methyl Heptenone
Methyl Phenylacetate
Phenylacetic Acid
Phenylacetone
Phenyl Propyl Alcohol
Phenyl Propyl Chloride
Potassium Phenylacetate
Propiophenone
Sodium Phenylacetate
And Other Intermediates



THE TRUBEK LABORATORIES

EAST RUTHERFORD, NEW JERSEY

ESTERS

Ethyl Acetate • Isopropyl Acetate • n. Butyl Acetate
Isobutyl Acetate • Primary Amyl Acetates
Methyl Amyl Acetate • "Cellosolve"* Acetate

* Registered Trade Mark U.C. & C.C.

Prompt deliveries from Newark

ALCOHOLS
KETONES
ESTERS
AMINES

CHLORINATED SOLVENTS
AROMATIC SOLVENTS
ALIPHATIC NAPHTHAS

PLASTICIZERS
GLYCOL ETHERS
GLYCOLS

THE CP CHEMICAL SOLVENTS INCORPORATED

60 PARK PLACE, NEWARK 2, NEW JERSEY — MArket 2-3650 WOrth 2-7763

V.I.P. living

for Important Corporations!

AN EXECUTIVE SUITE AT THE BARCLAY

With one of these distinguished apartments at The Barclay, you're assured of the best accommodations at all times for your top executives and important customers. It's an advantage, too, for away-from-the-office conferences and private luncheons.

A limited number of newly decorated suites – designed especially for executives – with living room, one or more bedrooms, each with bath, serving pantry and air-conditioning are now available. Your inspection is cordially invited.

THE *Barclay*
111 East 48th Street, New York
Plaza 5-5900

Tom Kane, *General Manager*
A REALTY HOTEL, HARRY M. ANHOLT, PRES.

expecting an order?

You'll get it quicker if your postal zone number is on the order blanks, return envelopes, letterheads.

The Post Office has divided 106 cities into postal delivery zones to speed mail delivery. Be sure to include zone number when writing to these cities; be sure to include *your* zone number in *your* return address — after the city, before the state.

ENGINEERING

frame mounted in a die-cut aperture on a standard data-processing punched card) onto a 24-in.-wide strip of unsensitized paper at the rate of 20 ft./minute.

This application of xerography, says Haloid Xerox President Joseph Wilson, opens the door to many timesaving and money-saving shortcuts in the handling of engineering drawings. For one thing, original pencil drawings on paper can be turned out faster and at less cost than ink drawings on tracing cloth. And storage of the card-mounted microfilms usually requires 70-95% less space than that required for full-size print storage.

With the help of mechanized data-processing to speed location of the desired drawing and of automatic, push-button xerography to turn out any number of copies, says Wilson, an engineering department can get drawings out faster—and with fewer skilled personnel. One user reduced its labor force from 43 to 23 people; another cut the time required for its drawing service from 71 to 16½ hours.

Depending on the volume of work handled, the new system can save an engineering department $50,000 to $500,000 annually, Wilson reports. Westinghouse, for example, expects to save about $360,000 through the use of unitized microfilm and xerography.

Present cost of the equipment—about $12,000 for microfilming, card-punching and filing facilities, plus $3,000/month rental for a Copyflo 24 printer—makes fairly large volume a prerequisite. To extend the advantages of the system to smaller-volume users, Haloid is currently working on a smaller and somewhat less-automatic printer—the Copyflo 1824—which will rent for about $200/month or sell for about $9,900.

PROCESSES

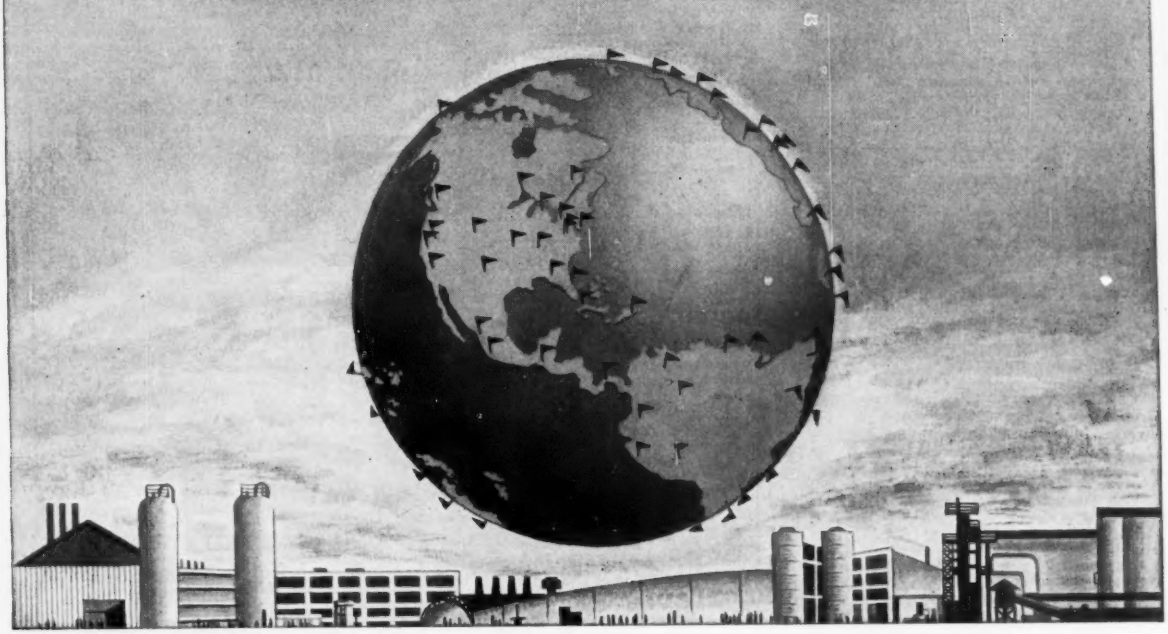
Halogenated Polystyrene: Badische Anilin- & Soda-Fabrik (Ludwigshafen, Germany) has a new method of making halogenated polystyrene, according to German preliminary patent application DAS 1,029,154. Instead of halogenating styrene or polystyrene, BASF reduces halogenated methyl phenyl ketone with zinc and hydrochloric acid in either aqueous or organic medium. Carrying out the reaction under pressure reduces reaction

HARSHAW *makes over* ***1,000 CHEMICALS***

for more than ***15,000*** *customers in*

50 *varied industries throughout the world!*

HARSHAW CAN SERVE YOU!



HARSHAW sells chemicals —thousands of them— for these and many other industries throughout the world

Abrasives
Aeronautica
Automotive
Brick and Tile
Ceramic
Cement and Concrete
Cosmetic
Disinfectants
Electrical Manufacturing
Electroplating
Enamel
Engraving and Electrotyping
Feed Stuff, Mineral Feed
Fertilizer
Food
Glass
Insecticide and Fungicide
Laundry
Leather
Lithographing
Linoleum and Floor Covering
Lubricant
Match
Metallurgical
Metal Working
Oil Cloth
Optical
Paint, Varnish and Lacquer
Paper
Petroleum
Pharmaceutical
Photographic
Porcelain Enamel
Plastics
Pottery
Printing Ink
Pyrotechnic
Refractories
Rubber
Shade Cloth
Soaps
Textile
Veterinary Remedies
Welding Electrodes
Wall Paper

Here are typical Harshaw chemical products

Electroplating Salts, Anodes and Processes
Organic and Inorganic Dry Colors and Dispersions
Driers and Metal Soaps
Vinyl Stabilizers
Ceramic Opacifiers and Colors
Fluorides
Glycerine
Preformed Catalysts, Catalytic Chemicals
Synthetic Optical Crystals
Agricultural Chemicals
Fungicides
Chemical Commodities

THE HARSHAW CHEMICAL CO.

1945 EAST 97th STREET • CLEVELAND 6, OHIO

Chicago • Cincinnati • Cleveland • Hastings-On-Hudson, N.Y. • Houston
Los Angeles • Detroit • Philadelphia • Pittsburgh

FREE! This 16-page booklet lists the many chemicals available from Harshaw.

WRITE TODAY FOR YOUR COPY

CHEMICAL WEEK • ADVERTISERS INDEX

November 15, 1958

AIR REDUCTION CHEMICAL CO. 4
Agency—G. M. Basford Co.

ALLIED CHEMICAL CORP., NITROGEN DIV. 47
Agency—G. M. Basford Co.

AMERICAN CAN CO. 87
Agency—Compton Adv., Inc.

AMERICAN CYANAMID CO. 106-108
Agency—Hazard Adv. Co.

ANTARA CHEMICALS, DIV. OF GENERAL ANILINE & FILM CORP. 78
Agency—The House of J. Hayden Twiss

ARCHER DANIELS MIDLAND CO. 8-9
Agency—The Alfred Colle Co.

BAKER PERKINS, INC. 23
Agency—Price, Tanner & Willox, Inc.

BALTIMORE & OHIO RAILROAD 48
Agency—Richard A. Foley, Adv.

BARCLAY HOTEL, THE 116
Agency—Koehl, Landis & Landan, Inc.

BEMIS BRO. BAG CO. 111
Agency—Gardner Adv. Co.

CABOT, INC., GODFREY L. 74
Agency—Larcom Randall Adv., Inc.

CALLERY CHEMICAL CO. 99
Agency—Ketchum, MacLeod & Grove, Inc.

CHEMICAL CONSTRUCTION CORP. 4-5
Agency—Godwin Advertising

CHEMICAL PRODUCTS DIV. OF CHEMETRON CORP. 100
Agency—The Griswold Eshleman Co.

CHEMICAL SOLVENTS INC., THE C. P. .. 116
Agency—Asher, Godfrey & Franklin, Inc.

CHEMICAL WEEK BUYERS' GUIDE 12

CHICAGO & NORTH WESTERN RAILWAY 2
Agency—The Caples Co., Adv.

COLORADO DEPT. OF DEVELOPMENT .. 106
Agency—William Kostka & Assoc. Inc.

CROLL REYNOLDS, CO. 114
Agency—The House of J. Hayden Twiss

CROWN CORK & SEAL CO. 67
Agency—Aitkin-Kynett Co., Adv.

DAY CO., THE J. H. 19
Agency—The Keelor & Stites Co.

DEHYDAG, DEUTSCHE HYDRIERWERKE GMBH. 102
Agency—Publicitas GmbH.

DELHI TAYLOR OIL CORP. 57
Agency—Sam J. Gallay Adv.

DISTILLATION PRODUCTS INDUSTRIES, DIV. OF EASTMAN KODAK CO. 56
Agency—The Rumrill Co., Inc.

DOW CHEMICAL CO., THE 20-21
Agency—MacManus, John & Adams, Inc.

DOW CORNING CORP. 26
Agency—Church & Guisewite Adv.

DU PONT DE NEMOURS & CO., INC., E. I., FREON DIV. 85
Agency—Batten, Barton, Durstine & Osborn, Inc.

DURIRON CO., THE ..... 4th cover
Agency—Kircher, Helton & Collett, Inc.

EASTMAN CHEMICAL PRODUCTS CO. .. 51
Agency—Fred Wittner Adv.

EL DORADO DIV. FORMOST FOOD & CHEMICAL CORP. 68
Agency—Sidney Garfield & Assoc.

EIMCO CORP., THE 14
Agency—Matsie Co.

ENJAY CO. 81
Agency—McCann Erickson, Inc.

ESCAMBIA CHEMICAL CORP. 25
Agency—Godwin Adv. Agency

ETHYL CORP. 29
Agency—H. B. Humphrey Alley & Richards, Inc.

FMC ORGANIC CHEMICALS DIV., FOOD MACHINERY & CHEMICALS CORP. 13
Agency—The McCarty Co., Adv., Inc.

GAYLORD CONTAINER CORP. 58
Agency—French & Shields, Inc.

GENERAL AMERICAN TRANSPORTATION CORP. TANK CAR DIV. 65
Agency—Edward H. Weiss & Co.

GLYCO CHEMICALS CORP. 102
Agency—G. M. Basford Co.

GRAVER TANK & MFG. CO. 107
Agency—Ladd, Southward & Bentley, Inc.

GULF OIL CORP. ..... 3rd cover
Agency—Ketchum, MacLeod & Grove, Inc.

HALL CO., THE C. P. 54
Agency—Cruttenden Adv.

HARCHEM DIV., WALLACE & TIERNAN, INC. 112
Agency—Branstater Associates, Inc.

HARSHAW CHEMICAL CO. 117

HERCULES POWDER CO. 1
Agency—Fuller & Smith & Ross, Inc.

HUMPHREY-WILKINSON, INC. 46
Agency—E. J. Lush, Inc.

INTERNATIONAL MINERALS & CHEMICAL CORP. 101
Agency—Klan-Van Pieterson-Dunlap, Inc.

INTERNATIONAL PAPER CO. 55
Agency—Picard, Marvin, Inc.

INTERNATIONAL SALT CO., INC. 52
Agency—Batten, Barton, Durstine & Osborn, Inc.

JOHNS-MANVILLE CORP. 89
Agency—J. Walter Thompson Co.

KELLOGG CO., THE M. W. 70
Agency—Fuller & Smith & Ross, Inc.

KOPPERS CO., INC. 58
Agency—Marsteller, Rickard, Gebhardt & Reed, Inc.

LINDE CO., DIV. OF UNION CARBIDE CORP. 73
Agency—J. M. Mathes, Inc.

LUCIDOL DIV., WALLACE & TIERNAN INC. 114
Agency—Barber & Drullard, Inc.

LINDSAY CHEMICAL CO. 82
Agency—C. Franklin Brown, Inc.

MINNESOTA MINING & MFG. CO. 30-31
Agency—MacManus, John & Adams, Inc.

MONSANTO CHEMICAL CO. 62
Agency—Gardner Adv. Co.

NATIONAL LEAD CO., THE 22
Agency—Marschalk & Pratt, Co., Inc.

OLIN MATHIESON CHEMICAL CO. 2nd cover, 64
Agency—Doyle, Kitchen & McCormick, Inc.

PACKAGE RESEARCH LABORATORY 6-7
Agency—Kniep Associates

PENNSALT CHEMICALS CORP. 37-38
Agency—The Aitkin-Kynett Co., Adv.

PFAUDLER CO., THE 10-11
Agency—The Rumrill Co., Inc.

PFIZER & CO., CHARLES 87
Agency—MacManus, John & Adams, Inc.

PITT-CONSOL CHEMICAL CO. 110
Agency—RAF Advertising, Inc.

RISDON MFG. CO. 50
Agency—Emil Mark & Co.

ROHM & HAAS CO. 77
Agency—Arndt, Preston, Chapin, Lamb & Keen, Inc.

SEAPLANT CORP. 106
Agency—F. P. Walther, Jr., & Assoc, Inc.

SHELL CHEMICAL CORP. 40
Agency—J. Walter Thompson Co.

SINCLAIR CHEMICALS, INC. 43
Agency—Morey, Humm & Warwick, Inc.

SOLVENTS & CHEMICALS GROUP, THE .. 92
Agency—Edward H. Weiss & Co.

STAUFFER CHEMICAL CO. 95
Agency—John Mather Lupton, Co.

TITANIUM PIGMENT CORP. SUB. OF NATIONAL LEAD CO. 60-61
Agency—Doyle, Kitchen & McCormick, Inc.

TRUBEK LABORATORIES, INC. 115
Agency—Ray Ellis Adv.

UNION BAG-CAMP PAPER CO. 96
Agency—Smith, Hagel & Knudsen, Inc.

U. S. BORAX & CHEMICAL CORP. PACIFIC COAST BORAX CO., DIV. 72
Agency—Howard M. Irwin & Assoc.

UNION CARBIDE CHEMICALS CORP., DIV. OF UNION CARBIDE CORP. 88
Agency—J. M. Mathes, Inc.

U. S. INDUSTRIAL CHEMICALS CO. 17-18
Agency—G. M. Basford Co.

VANDERBILT CO., R. T. 86
Agency—Pearsall & Schael, Inc.

VICTOR CHEMICAL WORKS 103-104
Agency—The Buchen Co.

VITRO ENGINEERING CO. 66
Agency—Molesworth Assoc.

VULCAN CINCINNATI, INC. 90-91
Agency—Farson, Huff & Northlich, Inc.

WESTERN SUPPLY CO. 113
Agency—White Advertising Agency

WEST PENN POWER 24
Agency—Fuller & Smith & Ross, Inc.

WEST VIRGINIA PULP & PAPER CO. 13
Agency—Fuller & Smith & Ross, Inc.

WILLIAMS & CO., C. K. 98
Agency—William A. Hatch, Inc.

WINTHROP LABORATORIES, INC. 75
Agency—Thompson-Koch Co.

WISCONSIN ALUMNI RESEARCH FOUNDATION 74
Agency—Arthur Towell, Inc

WYANDOTTE CHEMICAL CORP. 69
Agency—Brooke, Smith, French & Dorrance, Inc.

tracers SECTION

(Classified Advertising)

F. J. Eberle, Business Mgr.

CHEMICALS: Offered/Wanted 119

EMPLOYMENT 119

EQUIPMENT: Used/Surplus New 119
For Sale 119

WANTED 119

MANAGEMENT SERVICES 119

SPECIAL SERVICES 119

ADVERTISING STAFF

Atlanta 3 ..... Robert H. Powell, 1301 Rhodes-Haverty Bldg., JAckson 3-6951

Boston 16 .. Paul F. McPherson, 350 Park Square Building, HUbbard 2-7160

Chicago 11 ..... Alfred D. Becker, Jr., R. J. Claussen, 520 N. Michigan Ave., MOhawk 4-5800

Cleveland 13 .. H. J. Sweger, Duncan C. Stephens, 1164 Illuminating Bldg., 55 Public Square, SUperior 1-7000

Dallas 1 .... Gene Holland, Gordon Jones, The Vaughn Bldg., 1712 Commerce St., Riverside 7-5117

Denver 2 .... J. Patten, 1740 Broadway, ALpine 5-2981

Detroit 26 ..... H. J. Sweger, Jr., 856 Penobscot Bldg., WOodward 2-1793

Frankfurt/Main ..... Michael R. Zeynel, 15, Landgraf-Wilhelm, Germany

London E.C. 4 .. E. E. Schirmer, McGraw-Hill House, 95 Farringdon St., England

Los Angeles 17 .... John B. Uphoff, 1125 West Sixth St., HUntley 2-5450

New York 36 ..... Knox Armstrong, B. A. Johnson, P. F. McPherson, Charles F. Onasch, L. Charles Todaro, 500 5th Ave., OXford 5-5959

Philadelphia 3 .. William B. Hannum, Jr., 6 Penn Center Plaza, LOcust 8-4330

Pittsburgh 22 ..... Duncan C. Stephens, Room 1111 Henry W. Oliver Bldg., EXpress 1-1314

San Francisco 4 .... William C. Woolston, 68 Post St., DOuglas 2-4600

St. Louis 8 ..... R. J. Claussen, 3615 Olive St., Continental Bldg., JEfferson 5-4867

time. Addition of halogenated polystyrenes makes conventional polystyrene nonflammable.

•

Uranium Sulfate: Deutsche Gold- & Silber-Scheideanstalt (Frankfort, Germany) describes in preliminary patent application DAS 1,032,238 a new method of reducing hexavalent uranium solutions to tetravalent uranium sulfate. The hexavalent uranium solution in sulfuric acid is reduced with elemental sulfur at 250-300 C. Tetravalent uranium sulfate is extracted with water. An initial yield of 90% can be raised close to 100% by recycling the mother liquor.

•

Pure Silicon: A method of producing high-purity silicon is claimed by K. Praetz, of Humboldt University (East Berlin, Germany). Rather than decomposing silicon tetrachloride directly, as in other methods (*CW, Sept. 6, p. 76*), Praetz introduces purified hydrogen into the heated zone (1100-1200 C). Reduction to elemental silicon is carried out on a 0.1-mm.-thick sheet of tantalum heated by an increasing current of 14-80 amps. at 10-12 v. The product is said to have a resistivity of 300-700 ohm-cm.

•

Heavy Water: The German firms of Deutsche Gold- und Silber-Scheideanstalt (Frankfort) and Friedrich Uhde GmbH. (Dortmund) are constructing a 10-tons/year plant for the production of heavy water by the University of Marburg's catalytic hydrogen-steam exchange method *(CW, Nov. 1, p. 83).*

In another German development, Pintsch-Bamag AG. (Butzbach-Hessen) has developed, with the Institute for Physical Chemistry at Bonn University, a dual-temperature exchange between hydrogen sulfide and water. This is the same system used by the AEC at Savannah River, S.C. (*CW, Oct. 5, '57, p. 55*).

•

Alumina Process: An extra grinding operation increases alumina yields from bauxite by the Bayer process, according to German patents DBP 1,022,572 and DAS 1,035,118, issued to Gebrueder Giulini GmbH. (Ludwigshafen). A ball-mill action inside the soda-filled autoclave is said to raise alumina yield 7%, cut bauxite decomposition time and save steam.

Tracers TO THE CHEMICAL PROCESS INDUSTRIES

Buyers of

SPENT NICKEL CATALYSTS

send details to:

Pennson International Corp.
50 Broad St., New York 4, N.Y.

BUYERS OF SURPLUS

Chemicals—Oils—Solvents
Drugs—Resins—Waxes
Plasticizers—Colors—Etc.

BARCLAY CHEMICAL COMPANY, INC.
75 Varick Street New York 13, N. Y.
WORTH 6-4533

SURPLUS BOUGHT
ODD LOTS—DISCONTINUED RAW MATERIALS —SPENT OR CONTAMINATED SOLVENTS RESIDUES—METAL SLUDGES— OBSOLETE PLANT INVENTORIES
Industrial By-Products & Surplus Co.
DIV. OF ACTO CHEMICAL CO., INC.
40-40C Lawrence St., Flushing 54, N. Y.
INdependence 1-4100

FOR SALE

Raymond #3036 Hi-side three roll mill with accessories. Perry, 1415 N. 6th St., Phila. 22, Pa.

Fletcher 30" underdriven Centrifugal, stainless steel perforated basket. Perry Equipment Corp., 1415 N. 6th St., Philadelphia 22, Pa.

Stokes 5' x 8' Rotating Vacuum Dryer (Dryer-Blender), stainless steel internal for vacuum, steel jkt. 45 PSI. Perry, 1415 N. 6th, Phila., Pa.

Carboys, 13 gallon, in new ICC-1A Boxes. $8.50 each F.O.B. Chicago, Ill. or Cleveland, Ohio. General Container Co., 51 Euclid Ave., Newark 5, N.J. MItchell 2-5632.

BUSINESS OPPORTUNITY

British Firm of Chemical Manufacturers with excellent standing in the agricultural field and adequate chemical and bacteriological laboratory resources would be interested in tying up with American Chemical Manufacturer, either for manufacture in U. K. under licence or for importation of basic materials for final formulation. Correspondence to:—Dr. H. A. H. Growther, Ph.D., Managing Director, Gascoigne-Growther Ltd., Lactosan Laboratories, St. John's Road, Caversham, Reading.

SPECIAL SERVICE

Sales Executive offers consulting service as sales catalyst; textile and industrial chemicals; sales; selling organization; words & ideas which sell; matching new products and markets; first rate technical backg'd; diversified portfolio of skills. SS-9216, Chemical Week.

Employment OPPORTUNITIES

MARKETING AND MARKET DEVELOPMENT REPRESENTATIVE

Expansion in petrochemicals offers oportunities for chemically trained men with marketing experience. Challenging assignments are open. Age: 25-35. Educational background: At least a B.S. degree in chemistry or chemical engineering. Experience: Minimum of five years in some phase of chemical marketing. Manufacturing or laboratory experience in chemical or petroleum field also helpful. Salary: Commensurate with experience and ability. Replies strictly confidential. Send details of qualifications and experience to:

Petrochemicals Department
Gulf Oil Corporation
Post Office Box 1166, Pittsburgh 30, Pa.

POSITIONS VACANT

Chemist: Wanted for medium sized Eastern Chemical Specialties Manufacturer. Applicant must have experience in floor maintenance products, disinfectants and polishes for industrial application. If you are seeking an opportunity with a growing company this is it. Salary open—located in Metropolitan New York area. Write qualifications, all replys kept confidential. P-9259, Chemical Week.

Chemist or Pharmacist experienced in formulat-ing and compounding veterinary powders and liquids including sterile solutions. Desire a person of administrative ability to take charge of small but new and up-to-date plant. P-9258, Chemical Week.

SELLING OPPORTUNITY OFFERED

Citrus Products Salesmen, locate Florida, travel necessary, heavy experience beverage basis, citrus oils, flavor extracts, bakery supplies. Send detailed resume. RW-9299, Chemical Week.

POSITIONS WANTED

Manufacturing Chemist offers 20 years experi-ence in all phases of plant operations producing chemical specialties as textile auxiliaries, metal working compounds. Cost conscious, skilled in production management, chem, eng. degree. Seeks position as Plant Manager or Asst. to Vice-Pres. of Production. PW-9240, Chemical Week.

Chemist, Ph.D., heavy experience in research, production, development, and formulation of fats, vegetable oils and derivatives. Publications. Thoroughly familiar with new production methods and equipment. Desires position in which he can exercise own initiative. PW-9236, Chemical Week.

M.S. Ch. E., age 26, 3 years experience poly-ethylene compounding, desires sales technical service or development position. Northern location preferred. PW-9106, Chemical Week.

Management Services

EDWIN J. BARTH

Petroleum and Petrochemical Consultants

Design and Operations

378 West End Ave., New York 24, N. Y.
Phone: SU 7-5800

JAMES P. O'DONNELL

Consulting Engineer

Professional Engineering for the Petroleum and Process Industries

39 Broadway
New York 6, N. Y.
Beaumont, Texas

THE C. W. NOFSINGER CO.

"In Engineering, it's the PEOPLE that Count"

Engineers and Contractors for the Petroleum and Chemical Industries

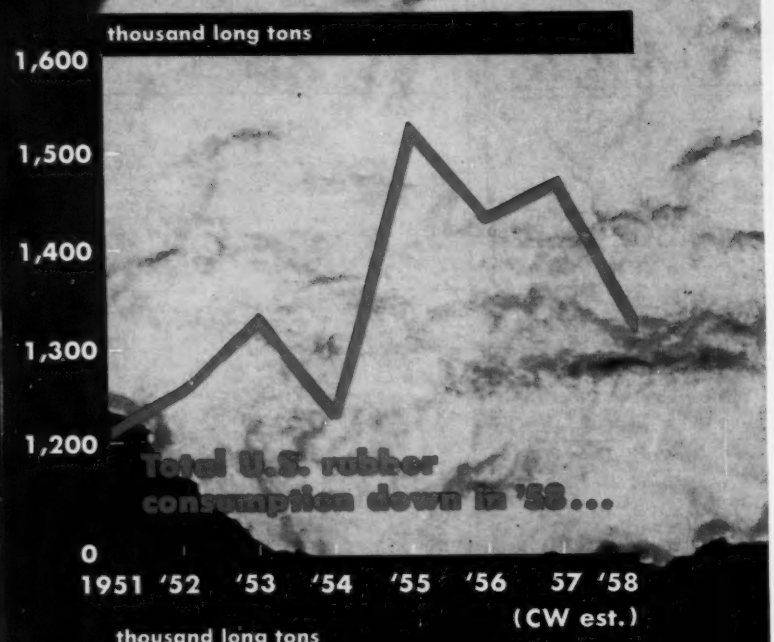
307 East 63rd Street
Kansas City 13, Missouri
Phone EMerson 3-1460

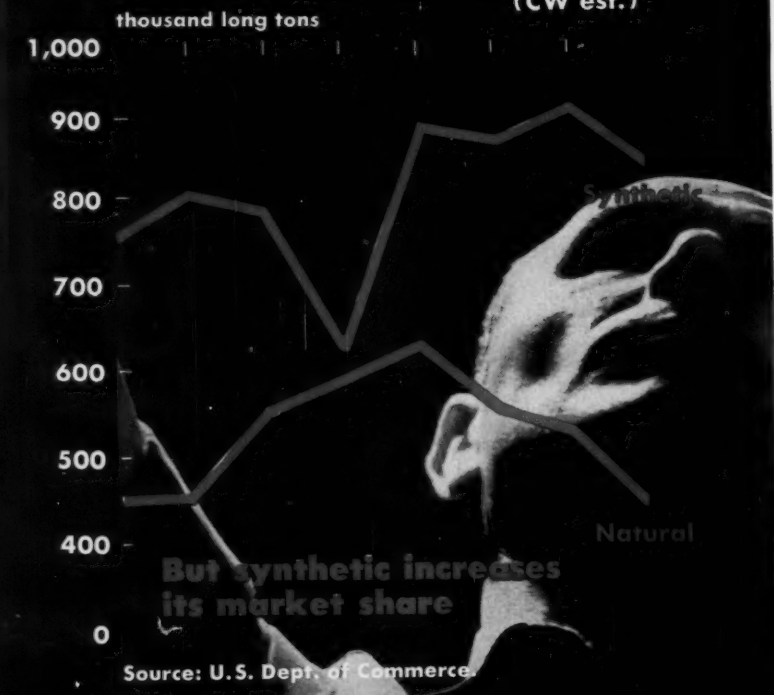
ROGER WILLIAMS

Technical & Economic Services, Inc.

- Chemical Economics
- Chemical Market Research
- Product Evaluation

New York Office: 148 East 38th St., NYC 16
MUrray Hill 5-5157
Main Office: PO Box 462, Princeton, N. J.
Walnut 1-8200





Source: U.S. Dept. of Commerce

Synthetic Stretches Its Lead

Total consumption of synthetic and natural rubber in the U.S. this year is expected to plummet to a low of 1.32 million long tons. That's 10% less than the 1.47 million l.t. used last year, 12% under the record 1.53 million used in '55.

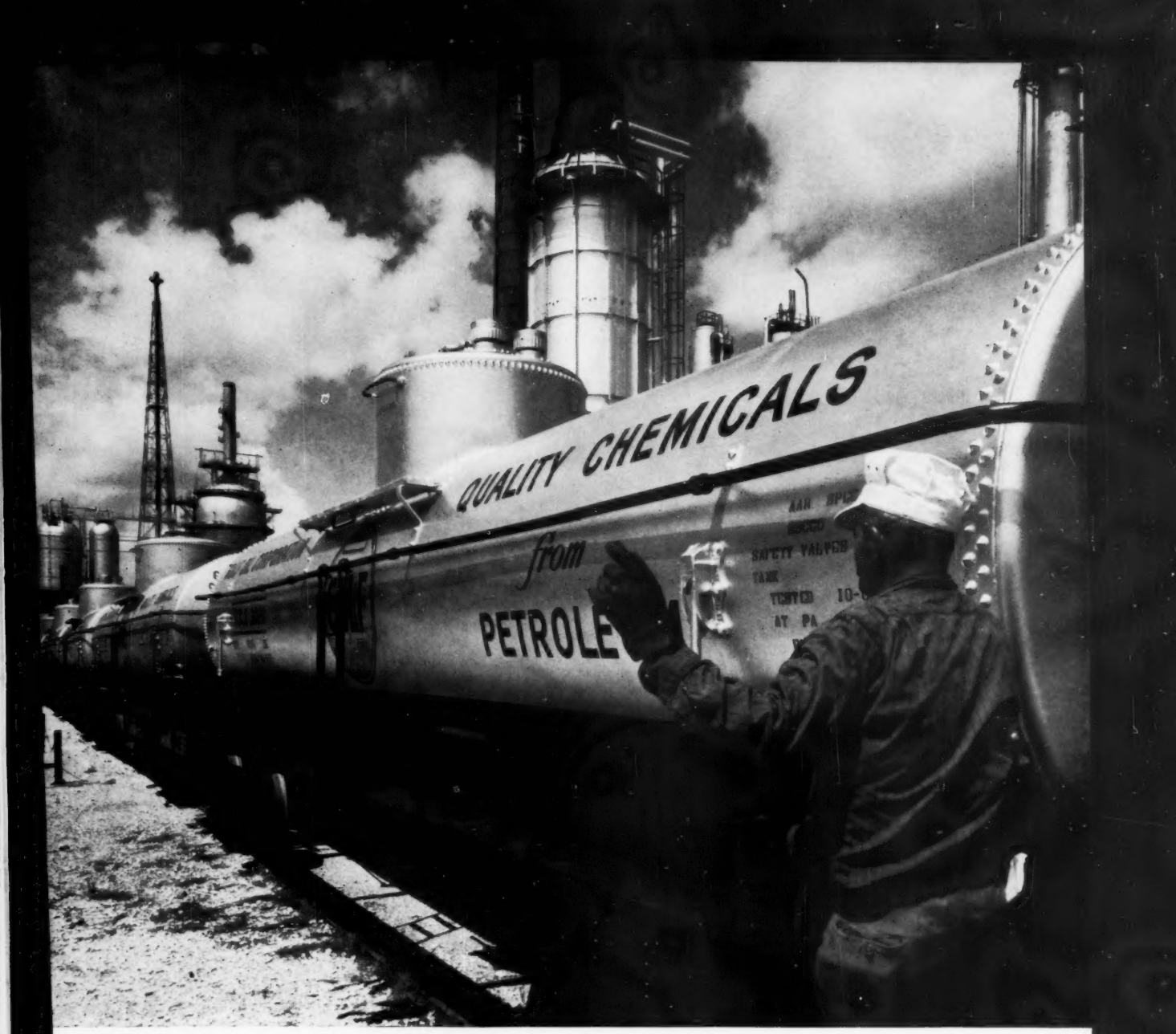
Latest available government statistics report use of synthetic rubber during the first nine months of this year totaled 620,000 l.t., compared with 695,000 in '57.

Demand for natural rubber also dropped to a total of 346,000 l.t. through September—62,000 less than in '57.

Industry now pegs total demand for synthetic rubber this year at 850,000 l.t., and calls for natural rubber at slightly more than 460,000. Thus, despite the slump, synthetic's share of the rubber market is increasing. It will probably gain a 65% slice this year, compared with 63% in '57, when synthetic volume hit an all-time record.

Main factor in declining use of rubber this year has, of course, been the backsliding automotive tire market, which takes well over 60% of the total rubber available. About 85 million passenger tires will be shipped this year, 5 million less than in '57. But partly offsetting this, replacement tire needs will hit a record 59 million units this year.

Next year, the rubber industry expects to register healthy gains in rubber demand. Reason: auto industry spokesmen forecast 5.5 million cars will be sold in '59, 1.2 million more than are expected to be sold this year. And this means more original-equipment tires, and eventually an increase in replacement-tire needs.



Gulf Isooctyl Alcohol

UNIFORM HIGH QUALITY...CAR AFTER CAR AFTER CAR

What would it mean, in your process, to be sure of an isooctyl alcohol that's consistently uniform in carbonyl content, acidity, water content, phthalation color, boiling range and other significant characteristics?

Specify Gulf Isooctyl Alcohol and you get this consistent uniformity . . . car after car after car. That's because we produce our own closely fractionated heptenes for feed stock, and then we quality-control the product during every step of its manufacture. The result is an alcohol of unmatched quality and uniformity, backed by Gulf research and experience.

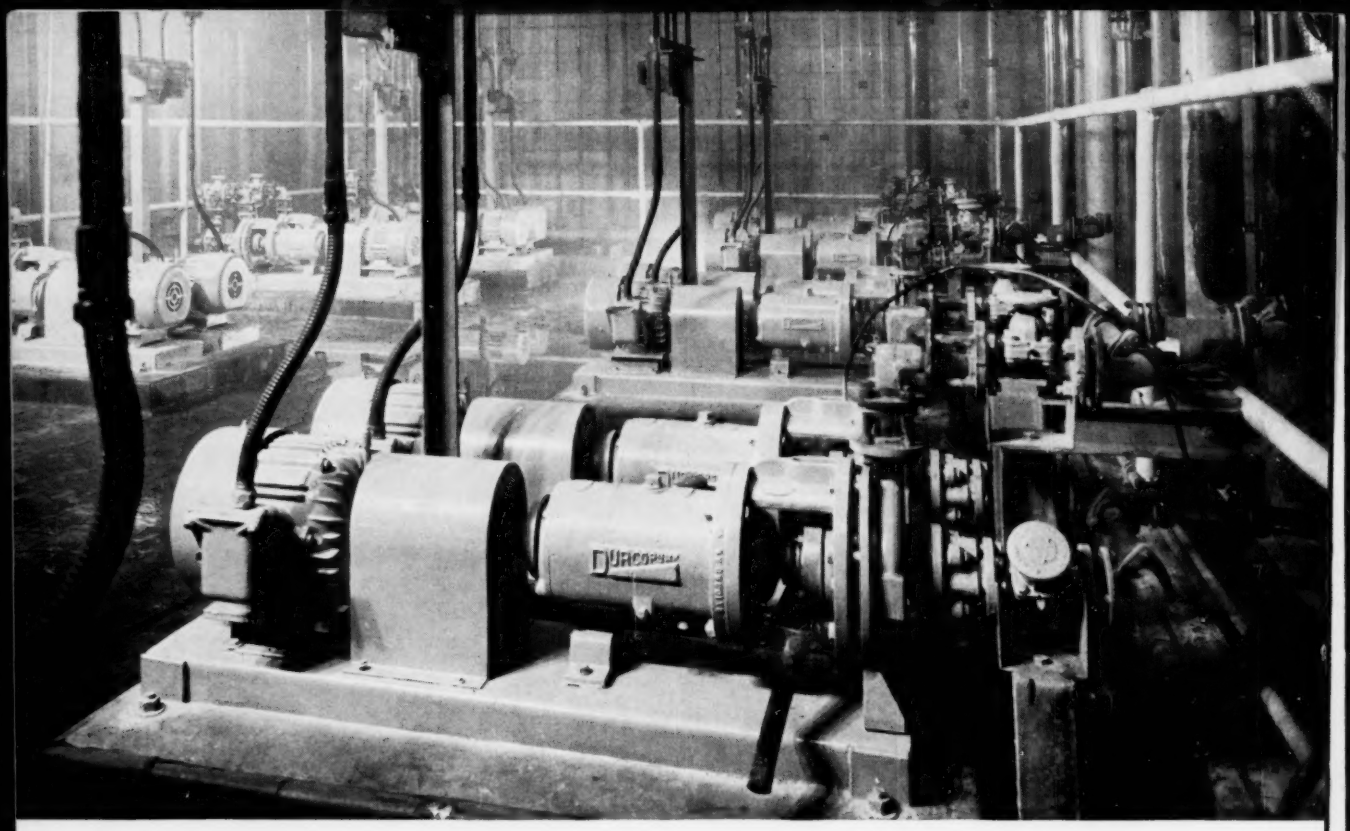
Take advantage of Gulf's leadership in the field of oxo chemistry. Let a plant trial convince you. For more information write or phone.

GULF

QUALITY CHEMICALS *from* PETROLEUM

Acetaldehyde · Aromatics · Ethylene · Propylene · Higher Olefins · Methanol · Oxo Products · Pentaerythritol · Sulfur

Petrochemicals Department
GULF OIL CORPORATION
Gulf Building, Pittsburgh 30, Pa.



THIS IS A PUMPING STATION AT CARBORUNDUM METALS COMPANY. HERE ARE A FEW OF THE MORE THAN FORTY SERIES H DURCOPUMPS USED IN THE PRODUCTION OF ZIRCONIUM. THESE PUMPS HANDLE $ZrOCl_2$ TWENTY-FOUR HOURS A DAY, SEVEN DAYS A WEEK. THE AIR IN THIS AREA IS CONSTANTLY FILLED WITH CORROSIVE CHEMICAL VAPORS. EVEN WITH THIS HARD USE AND CHEMICAL ABUSE, DURCOPUMPS REQUIRE AN ABSOLUTE MINIMUM OF MAINTENANCE.

Series H Durcopumps are chemical pumps all the way. They are designed and built to give long, trouble-free life when handling tough corrosives. They have a large, rugged shaft with minimum deflection, heavy duty bearings, integral suction and discharge with casing support. Durcopumps are adaptable to either packing or mechanical seal.

These pumps are available in twelve standard alloys with interchangeable wet end parts. Capacities range from ½ to 3500 gpm, and heads to 345'. When you have a chemicals handling problem, and want long, dependable pump life, call the Durco service engineer.

DURCO
CORROSION RESISTING ALLOYS & EQUIPMENT

The mark of dependability in tough chemical service . . . everywhere

THE DURIRON COMPANY, INC. / DAYTON, OHIO

Branch Offices: Baltimore, Boston, Buffalo, Chicago, Cleveland, Dayton, Detroit, Houston, Knoxville, Los Angeles, New York, Pensacola, Philadelphia, and Pittsburgh.